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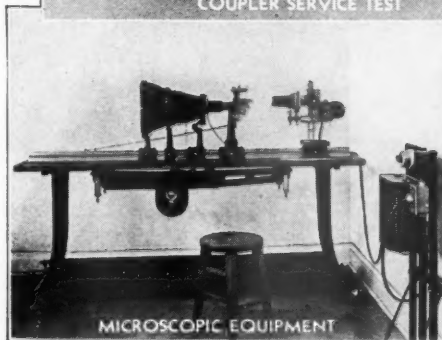
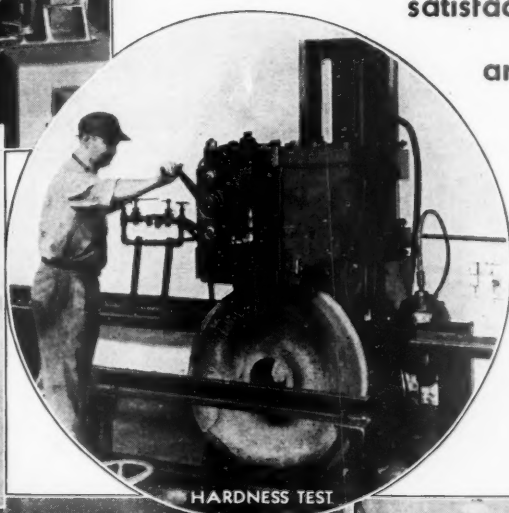
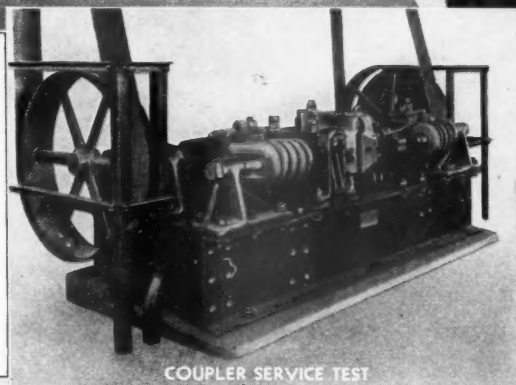
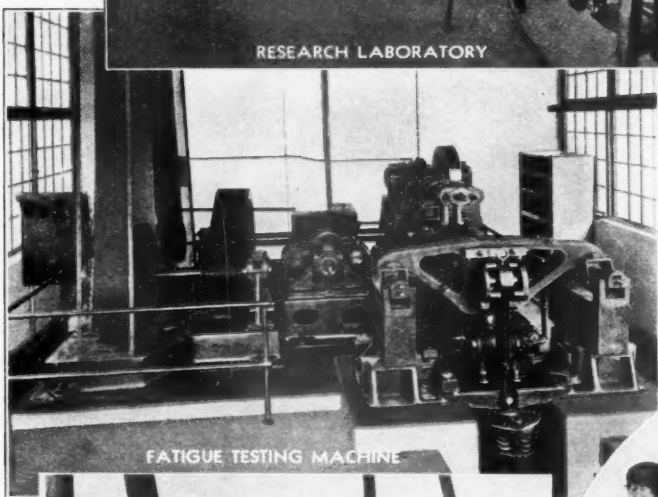
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Organized Labor's Interest in Transport Equality

One of the principal reasons why so many railroad men are at present unemployed is that the wages paid employees of bus, truck and water lines are the merest fraction of railroad wages, enabling these competitors of the railways to make low rates and secure traffic which otherwise would move by rail and give employment to railroad men. This situation is self-evident, and one might expect that organizations representing railroad labor would be devoting their main energies to securing, by legislation or otherwise, an equalization upward of wages and working conditions in agencies of transportation competitive with the railways, so that railway jobs and the high labor standards prevailing on the railways might not be jeopardized by "sweated" workers. Perhaps they are taking some action along this line, but, if so, it is a half-hearted effort by comparison with the vigor with which they are pressing for early passage of compulsory railway pension legislation, the unavoidable result of which would be greatly increased cost of railway transportation, disadvantaging the railways further in their efforts to retain traffic and thus make secure the jobs of railway employees.

Where Will the Money Come From?

The *Railway Age* favors pensions for superannuated employees and it has long been of opinion that the plans for providing for such payments on most railroads were in need of revision to make the charges more nearly uniform from year to year instead of beginning modestly and constantly increasing. However, for such payments, as well as other expenditures required of the railroads, our enthusiasm has always been qualified by the conviction that the first consideration should be where the money is to come from. Plans for huge expenditures are easy to make, but they are incomplete and cannot accomplish their purpose if they contain in them provisions which place insuperable obstacles in the way of raising the money to meet them. In this category belong both the Wagner and Hatfield bills for compulsory railway pensions now pending in Congress and upon which action will be sought at the coming session. Both of them involve an annual cost to the railways which will either bankrupt them at once, or result in a high rate level which will

divert further traffic to trucks, thus not only completing the ruin of railway owners but putting further thousands of their employees out of work.

A force of 2000 men, paid by federal relief funds, is being put to work to make a survey under direction of the Federal Co-ordinator of Transportation in an effort to arrive at better estimates than any now available of the probable cost of the pension plans. Estimates made of probable costs to the railroads under each bill (their provisions have since been changed somewhat) were offered as testimony before Congressional committees. They vary widely, but the actuary for the proponents of the Hatfield bill placed its pension costs alone (omitting disability and sickness benefits) at from 77 millions to 202 millions the first year, increasing year by year to from 289 millions to 364 millions in the twentieth year. The actuary testifying for the Wagner bill estimated the cost at 200 millions annually. The railroad actuary, on the other hand, placed the probable annual cost of the Hatfield bill at an average of 226 millions during the first five years, rising to 459 millions after fifteen years, while he estimated that the Wagner bill would cost 375 millions annually. These figures, to be sure, are far apart. Certainly, however, the proponents of the bills cannot be suspected of overstating the probable cost and, even on such estimates, the measures will cost not less than \$200,000,000 a year.

200 Millions of Added Expense

Where is the \$200,000,000, or as much more as may be required, to come from? The railways in 1932 failed by over 150 millions to earn their fixed charges. In 1933 with improved traffic and further economies the railways as a whole may cover these charges, but they would not be able to do so if they had maintained a normal retirement and replacement program or if maintenance expenditures had been normal. It is thus perfectly plain that an added outlay of 200 millions in either 1932 or 1933 would simply have meant complete disaster, which even a government willing to lend its credit to bolster up railroad securities, in order to protect the life insurance companies and savings banks which own them, could probably not have prevented. In 1931—with maintenance already severely curtailed—

the railways had net income of 116 millions, which the pension plans, under the most conservative estimate of their costs, would have converted into a deficit of almost the same sum. The railways in 1930 earned 3.36 per cent on their property investment—only about one-half point lower than the average earnings on their investment in the eleven-year period 1922-32. And yet in such a year, with earnings so near the average, net income was only 527 millions and the pension plans as most conservatively estimated would have cut this total by more than one-third, and probably even by a half. No industry can continue indefinitely in private ownership when persons whose capital is needed to keep it in operation know that there is little chance of a reasonable return upon such investment and that the safety of the principal itself is doubtful.

The railways have been criticized for not financing themselves to a greater extent by issues of stock rather than by bonds. As a practical matter such financing is all but impossible unless earnings and dividends are such that the stock rises above par. At the end of 1930 with net income what it was, the average price of twenty representative railway stocks, as compiled by the *Railway Age*, was about \$80, or 20 per cent less than par. If these proposed pension payments had been taken from this income, the average would certainly have fallen to \$50 and probably even lower. The proposed pensions, therefore, by curtailing income so severely even in comparatively prosperous years, would close the door effectively to any move to improve the railway capital structure by substituting stock issues for bonds. In years of real depression such as 1932 and 1933, they would have completely ruined the railways and the financial institutions which own their securities by making the roads fail by several hundred millions to meet the interest on their funded debt. Many "border line" railroads—those in receivership or near it—just barely able to continue operating under conditions as they have been for the past two years, if they had had to meet these pension charges, would not have been able to pay operating expenses and, consequently, would have had to go out of business entirely, sending their employees to the bread lines.

Inequality of Transport Competition Greatest Danger to Railway Labor Standards

The *Railway Age* is in entire sympathy with railway employees in their desire to provide for themselves in their old age, but it believes that they are deluding themselves if they think that compulsory pensions involving any such sums as those provided for in the Wagner and Hatfield bills will safeguard them in any way, as long as buses, trucks and barges are offering transportation service at rates made low by huge subsidies from the public treasury and by the low wages and long hours of their employees. To attempt further to improve the economic position of railway employees when the costs can no longer be passed along to shippers, who now can and do divert traffic to the railways' competitors whenever railway charges appear too high, is folly. It is a strategy which, while it can no longer

succeed, was highly successful while the railways had a monopoly of transportation, but it was overworked and resulted in high labor costs and rates greater than they otherwise would have been; and such rates, at least in part, contributed to the ill-advised public demand for the development of alternative transportation agencies which would provide rates lower than those which the railways can afford to make.

The obstacle in the way of better economic conditions for railway employees is not the railway manager who refuses to make concessions to them, but the competitive situation which makes it impossible for the manager to make the concessions and still keep traffic on the railroad and his employees on the payroll. To attempt independently such amelioration of railway labor's position is simply to increase the competitive disadvantages the railways now labor under and divert more of their traffic to the highways and waterways. Organized railway labor, if it is really serious in its desire to improve—or even preserve—its economic condition should recognize that the first essential step must be to bring employees of competing transportation agencies up to a par of wages and working conditions with railway employees and to end the subsidies which permit artificially low rates in highway and waterway transportation. If the organizations will do this, and then insist on pensions for such employees similar to those they seek, then perhaps their pension plans can be made to work on the railroads. Otherwise their effort is foredoomed to failure, for it will wreck the railroads and drive away their business to a point where many companies will be forced to cease paying, not pensions only, but wages as well.

Does the N. I. T. League Truly Represent Shippers?

The traffic manager of an industry, like every other normal individual, is concerned primarily with making a record for himself in his job. Unless he is very broad-visioned, therefore, he may believe that by diverting much of the traffic at his disposal from the railroads to agencies of transportation supported in large part by taxation, he will show reduced shipping costs to his employer; and it may be that his employer will not look beyond the figures and will have a high opinion of the efficiency of his traffic department. Similarly, with reduced shipping costs his primary aim, the traffic manager normally will be the last person to object to unregulated competition of truck and water lines which enables him to play the competitors against each other to secure the lowest rates.

We do not make these observations in a hypercritical spirit, but only to draw attention to the special interests of industrial traffic men which make it extremely difficult for all except the most broad-gauged of them to give an expression to views on transportation matters which are unselfish and in the interest of in-

dustry as a whole rather than the narrow professional advantage of themselves as traffic men. With this handicap in mind, it is easy to understand why the National Industrial Traffic League, in giving its views on transportation questions to Co-ordinator Eastman, favored no regulation of motor and water transportation comparable to that applied to the railways.

Also in view of the propaganda speeches and writings in behalf of motor truck transportation by R. C. Fulbright, chairman of the League's legislative committee, it is not at all surprising that a document that he had a hand in preparing should indicate a belief that motor transport is already adequately taxed, and that this question should be left for final determination to "engineers and officials having charge of the construction, maintenance and operation of the highways", which phraseology undoubtedly includes in a prominent position Thomas H. MacDonald, chief of the Bureau of Public Roads, who can always be relied upon to use his government position to promote policies favorable to the trucks and adverse to the railways.

The League graciously made a gesture or two in favor of less stringent regulation of the railroads—one a really important one, namely the advocacy of repeal of the long-and-short-haul clause of the Interstate Commerce Act. On the other hand, however, it not only urges the retention of the present prohibition of railroad ownership of water lines, but it is opposed to permitting the railroads to acquire any "competitive agencies of transportation" whatsoever.

Viewed for what this expression of the League's really is—namely a narrow view of the selfish interest—not of industries—but of industrial traffic men, there would be little to object to about it. But it is not called what it is. Instead it purports to present the view of shippers, when it should be evident that traffic men are not shippers, but are merely shippers' employees with interests of their own which may or may not coincide entirely with those of the industries they serve. If the views of the traffic men who support this presentation to Mr. Eastman had been passed upon by considered action of the boards of directors of the companies they work for, then they might truly be called the views of at least some shippers. However, if they had been referred to these boards, in all probability the views expressed would have been vastly different.

Fortunately there exists ample corroboration for this assumption in the returns to the recent transportation questionnaire of the United States Chamber of Commerce, where opinions were sought on many of the same questions upon which the National Industrial Traffic League has given its opinion. The chambers of commerce obviously offer a far more representative cross-section of the views of the actual shippers and receivers of freight, since they include all forms of business and all classes of business executives—presidents, sales manager, accountants, purchasing officers and others, and do not reflect the selfish interest of one narrow professional group. Mr. Fulbright and his associates, before they claim to speak for the shippers against equality of competitive conditions in transpor-

tation, had better first try to explain away the fact that the chambers of commerce of the country have voted overwhelmingly in favor of comparable regulation for the railways and their competitors; and that they refused by a substantial majority to endorse the standards of size and weight limitations of motor vehicles approved by the American Association of State Highway Officials and favored by the National Industrial Traffic League.

Rail Corrugation

One of the most recent problems to confront maintenance of way officers is that of rail corrugation or "washboard" rail. While apparently involving no immediate hazard to train operation, this phenomenon is destructive of the rail itself and is producing a train of ill effects upon the track structure and upon the rolling stock moving over it.

Only a few years ago corrugated rail was little known on steam railways. Traces were found infrequently on the low side of curves, but most track men knew little or nothing about it or paid no attention to it. Today corrugated rail is recognized as prevalent on several heavy traffic railways in the east, and it is being discovered on others as search is made for it.

Normally the corrugations have a span of from two to three inches between high spots and appear first as small shiny marks at more or less equal intervals on the wearing surface of the rail head. Growing under traffic, presumably, the rail markings become a succession of alternately dull and polished spots, with depressions ranging from 10 thousandths of an inch to about 17 thousandths of an inch in severe cases. This corrugated rail is noisy rail and is not, therefore, conducive of quiet passenger train operation. More important, however, is the destruction of the rail itself and, through the vibration set up, the destruction of the surface of the track, with its resulting low joints and loose joint bolts. Similarly, the vibration set up in cars must inevitably add materially to the problem of car maintenance.

Confronted with the problem, two major questions demand answer; (1) what is the cause of rail corrugation and (2) how can existing corrugations in rail be removed practically and economically? Those closest to the problem have looked first for answers, quite naturally, to the street railways and certain interurban lines, which have in past years been troubled quite seriously with corrugated rail. Unfortunately, the generally-accepted cause of such rail on these railways is primarily one of equipment, which is so radically different in design and operation from that used on the steam railways as to raise serious doubt that the cause on the steam roads might be the same.

To date this difficulty on the steam railways has been found primarily, if not solely, in well maintained main tracks of the most modern design, with their heavy rail, liberal ballast section and other characteristics of rigid

construction. Yet on the road on which the trouble was first recognized and on which it is widely prevalent, no trouble was experienced prior to the last two years. Furthermore, while not continuous over the main line of this road, the corrugations appear in sections of varying length throughout its extent, without regard to local conditions or to the age of the rail. The newest rail is afflicted as well as the oldest; the difficulty is found on tangents and on curves, the only spots that appear to be consistently free from it being sharp curves. Yet, branch line tracks on this road are almost entirely free of rail corrugation and, being laid throughout with rail released from the main line, testify to the absence of corrugated rail in these main tracks in earlier years.

Turning to equipment, a questioning eye was cast at the rail motor cars operated by the road, primarily because they approximate in some respects the gear-driven equipment employed on street railways, but any suspicion in this direction was counteracted by the fact that the corrugated rail is equally as common in territory on which these motor cars do not operate as where they are used most largely. Likewise, locomotives very early received consideration on the road because, whether significant or not, the rapid spread of corrugated rail was noted concurrently with or shortly after the road had put a number of new locomotives in service. Heavy loading has also been investigated as a possible contributing cause, but here again certain branch lines which carry the heaviest loads moved over the road, are free of rail corrugations, while sections of the main line with no heavier loads are marked continuously.

The most recent development is the discovery that a large number of wheels have been found in service with transverse tread corrugations of as great a depth as 17 thousandths inch, closely resembling in this and other respects the corrugations found in the running surfaces of the rails. The cause of these corrugations in the wheel treads constitutes another question to be answered. That they are not caused by the corrugated rail would appear to be indicated by the fact that only a small proportion of the car wheels inspected have shown these corrugated running surfaces and the further fact that rail steel is much softer than that in the wheel treads.

To the extent that corrugated rail now exists and will continue to develop, the problem of removing these corrugations from running surfaces of rail and of wheels becomes a pressing one. So far as rail is concerned, equipment is now being developed to remove the corrugations on a large scale. However, such equipment will, at best, be a poor substitute for the elimination of the conditions giving rise to the corrugations, both because of the cost of their removal and equally by reason of the destruction of material that will result, one road concluding from its observations of the rate of development of these corrugations, that it will be necessary, by repeated work on the rail, to

remove one inch of metal from the head of the rails in a period of 10 years if it is to maintain a smooth riding surface.

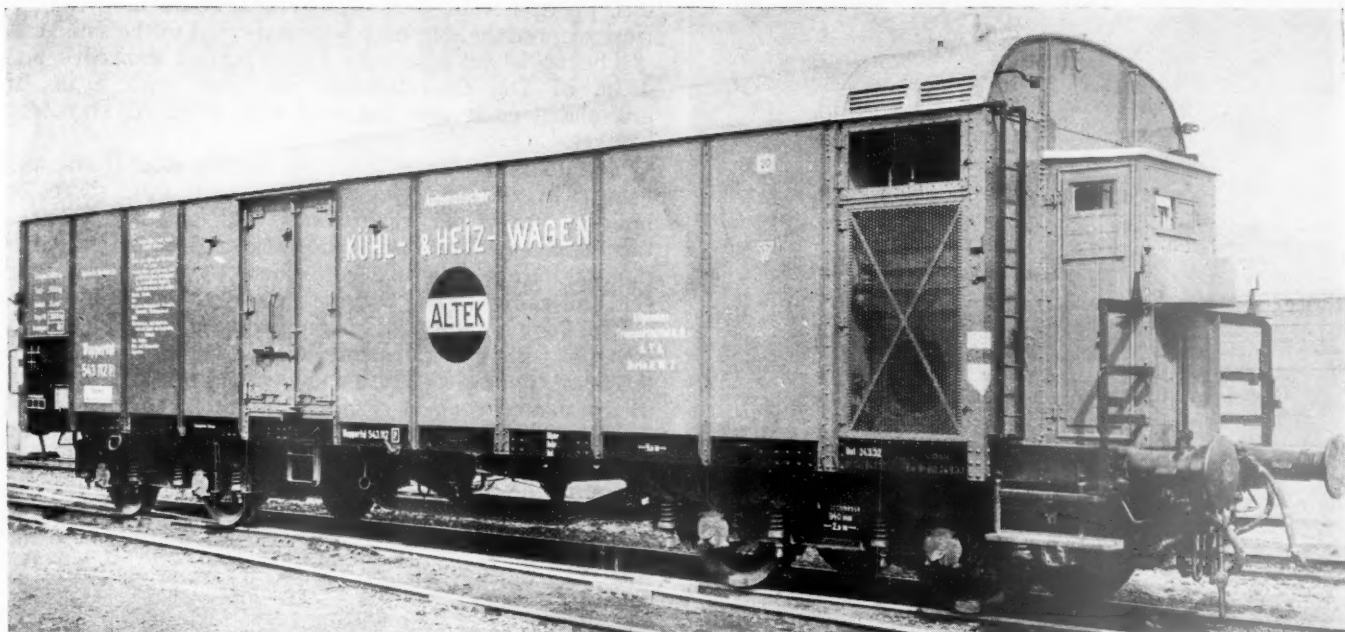
In the consideration of this problem it is not without value to recognize that these corrugations have appeared coincident with the marked speeding up of freight trains until such trains now approximate passenger train schedules, not occasionally but as regular practice. It is not improbable, in the thought of some, that the combination of high speeds of freight trains and rigid track may set up an action that is leading to the corrugation of rails and wheels alike. Whatever the cause, this problem calls for united aggressive and open-minded study by maintenance of way and equipment officers alike.

Improvement in Business Resumed

As the year 1933 draws toward a close, there are numerous indications which seem unmistakably to indicate that another upturn in general business has begun. Allowing for seasonal variations, there was an unprecedentedly rapid increase in freight car loadings from March through July and a decline during August, September and October. The upward trend of loadings was renewed in November and continued to and during the week ended December 16 when they were relatively the largest since the week ended September 9.

General business, and car loadings as an indicator of its trend, have undergone unprecedented fluctuations during 1933. They declined during the first quarter of the year, increased until the end of July, declined again for three months, and then increased again during the last two months of the year. There is, we believe, no record of any year during which so many and such marked changes in trend occurred. The unusual fluctuations undoubtedly were due to some unprecedented influences, including policies of the government which have been intended more to cause a social revolution than economic recovery. It is difficult to estimate to what extent the improvement during the last two months has been due to natural economic causes and to artificial government measures, but that it is largely due to natural economic causes there can be no question.

One thing is certain. Railroad business is better. Railroad freight traffic was relatively larger in December than in any other month of 1932, and, therefore, the improvement in December, 1933, over December, 1932, is both significant and substantial. There is no prospect of any such decline in the first quarter of 1934 as occurred in the first quarter of 1933, and the business barometer clearly forecasts better business throughout 1934 than in 1933.



An Altek Refrigerator Car—The Mechanical Refrigerating Equipment Is Located in the Compartment at the Rear End of the Car

Belgian Refrigerator Car Is Mechanically Cooled

Cars developed by the Altek Company are heavily insulated with Dry-Zero—Diesel compressor unit good for eight days' service

A NEW type of mechanically cooled refrigerator car, developed and operated in Europe by the Altek Company, Antwerp, Belgium, is being considered for use in this country, a feature of the cars being the unusually extensive and effective use of Dry-Zero blanket insulation.

Altek refrigerator cars are unique in that they are the only perishable goods car ever awarded certificates of capability by Lloyd's Register of Shipping. During the five-year period that Altek's mechanically cooled cars have been in service abroad, they have made an impressive record, with a loss of perishables of only 1.6 per cent. The refrigerating cost per car under maximum conditions is approximately 48 cents a day, according to Altek, and servicing costs also are said to be low. These facts are especially notable when the adverse conditions accompanying long hauls in Europe are considered, such as delays at national frontiers, the handling of the cars by train crews of diverse nationalities, and poor track conditions.

In addition to this performance record, there are several exceptional features that make the Altek design interesting to American refrigerator car builders and operators. One is the use of an 8- to 10-hp. full Diesel motor to operate the refrigerating unit comprising a two-stage ammonia compressor which is built to maintain, for 8 days without servicing, any desired temperature between 150 deg. and 60 deg. F., under external conditions varying between 0 deg. and 110 deg. F. Another

is the use of unusually thick and effective insulation, 7 in. in the roof, 6 in. in the walls and 5 in. in the floor. These thicknesses are composed principally of an extremely low conductivity material, specified to minimize refrigeration cost and to provide a large factor of safety for perishable loads in the event of delays or breakdown of the cooling equipment. If such occurs, Lloyd's insist that the car not be opened or unloaded but be carried to destination because they prefer to rely on the excellence of the insulation to protect the insured lading.

Both the refrigerating system and the design of the car proper are the result of Altek's own research. The decision to use an internal-combustion engine to operate a plant intended to run without attention in a railway car was considered a daring step by many engineers, although the modern Diesels have reached a high degree of reliability. In addition, certain safety devices have been developed which tend to protect the plant against any normal breakdowns. In fact, the simple and sturdy design of the plant, and the use of these safety devices, are largely responsible for Altek's obtaining Lloyd's certificates on the cars.

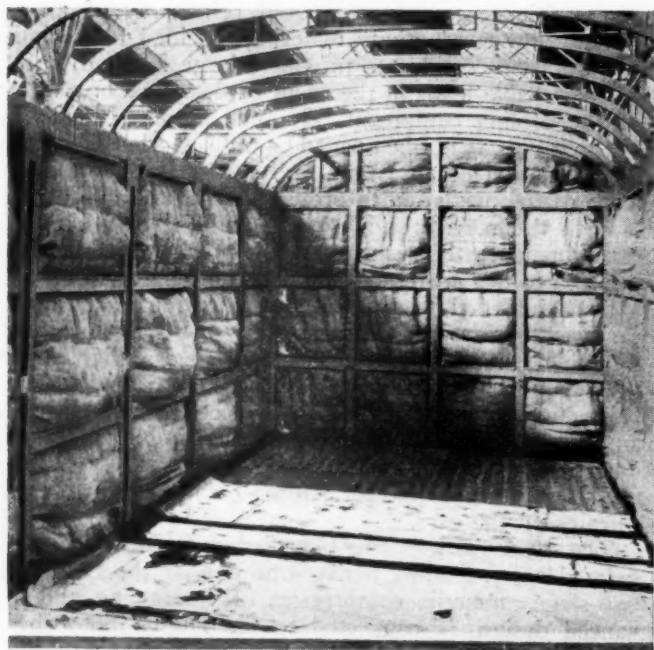
The Altek refrigerating plant is housed in a space 3 ft. 6 in. deep, extending across one end of the car. The two-stage ammonia compressor, of interesting and advanced design, is connected to the Diesel motor by a geared transmission. The remainder of the equipment consists of an evaporator in the form of a direct air cooler, an air-cooled condenser, a 3-kw. generator driven



Interior View of an Altek Refrigerator Car. Chilled Air Is Blown by an Electric Fan Along an Air Duct Under the Roof. Ports in This Duct Distribute the Air Over the Length of the Car. The Chilled Air Drops Evenly Over the Cargo and Is Returned Through the Grid at the Bottom of the Bulkhead to Pass Again Over the Refrigerating Coils

by V-belts from the Diesel fly-wheel, an electrically driven fan which circulates air in the car and an electric heating apparatus for use when particular cargoes require it. Fuel and water tanks are installed under the engine-room roof. A special control gear governs the automatic operation of the refrigerating unit. Although the plant is designed to operate without attention except at terminals, regular railway trainmen may be instructed to do emergency supervising, if necessary.

The interior of the car is covered entirely with galvanized steel sheets. The use of timber for the inside lining has been discontinued because wood absorbs odors and is susceptible to penetration of mould spores. All joints in the steel lining sheets and the screws fixing the sheets to the inner posts, roof beams and floor boards are securely soldered. It is, therefore, possible thoroughly to wash and steam out the interior of the cars and to render cargoes immune to contamination from merchan-



Altek Car Under Construction—Two Layers of Dry-Zero Blanket Have Been Placed Inside the Outer Layer of Cork Slab Insulation

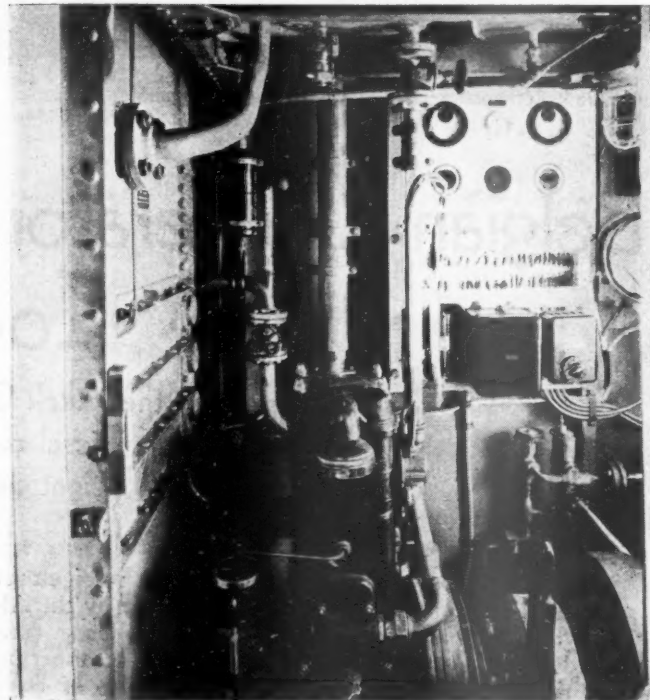
dise previously carried, thus greatly broadening the variety of produce that may be transported in the same car.

The walls are insulated with 2 in. of slab cork and 4 in. of Dry-Zero blanket, the floor with 5 in. of granulated cork, and the roof with 7 in. of Dry-Zero blanket.

The doors are hung from the outside steel frame and have 6 in. of Dry-Zero insulation with four sheets of building paper, one against each wall and two between the blankets. The door frames are of light construction, and are inset with a spring wood strip covered with felt and canvas. The fastenings are of the Miner type.

The floor is composed of tongue-and-groove sheathing, covered with a water-proof canvas, upon which rests the floor framework. Into these frames are inserted 5 in. of granulated cork in rectangular burlap covers. Next comes a $\frac{1}{4}$ -in. rubber membrane, which rises 8 in. up the walls, and lastly the metal flooring, which is soldered to the inside metal lining.

The roof carries 7 in. of Dry-Zero blanket insulation, and is designed to reduce heat transmission through the



The Diesel Engine and Electric Switchboard in an Altek Refrigerator Car

framing to a minimum. The inner series of roof beams is bolted to sockets attached to the inner framework of the walls; the metal lining is screwed to the inside of these roof beams. Between the roof beams and above the metal lining are laid a course of building paper and a blanket of Dry-Zero. Then, for the entire length of the car and over the roof beams, lining and sections of Dry-Zero, are laid two Dry-Zero blankets covering the entire roof area, which are secured by battons to the inner wood roof beams. Over these are placed the outer, steel roof beams which are bolted to the outside framework of the car. Between these come additional Dry-Zero blankets, laid transversely over the car. Lastly come the wood planking and outside canvas.

The sides of the car and the outer roof are made of tongue-and-groove American pinewood boards. All the roof boarding is covered with a bituminous roofing felt made in one piece. Under the inner roof of galvanized sheet steel is an air duct made of the same material. Air is drawn by a fan from the bottom of the car over the

(Continued on page 912)

Automatic Interlocking on the A. & S.

Trains operated in either direction on both tracks of two double-track lines at crossing
—More than 12,000 train stops eliminated annually

AN automatic interlocking has been installed by the Alton & Southern at a crossing of its double-track line with a double-track line of the Southern in East St. Louis, Ill. Important features of this plant are an arrangement whereby train movements are directed by signal indication in either direction on both tracks of each road, and the provision that is made for making movements over switches within home signal limits and over crossovers located within distant signal limits.

On the Southern, the crossing is located about a mile east of the East St. Louis station, this road's engine terminal being just east of the crossing and its Copeman yard about a half mile west. The Alton & Southern's Davis yard is about one mile south of the crossing, this line being built across the Southern in 1913, and a second track was added in 1928. In addition to six passenger trains and eight scheduled freight trains daily, the Southern operates numerous light engines and switching cuts over the crossing while the A. & S., being a belt line, handles freight traffic only, as many as 20 or more trains being run daily.

As no interlocking was in service at this crossing, all trains and light engines were required to stop. This not only resulted in train delays but while the trains were traveling at slow speed and stopping they were blocking two important highways. Consideration was given from time to time to the installation of either a mechanical or a power interlocking plant at this railroad



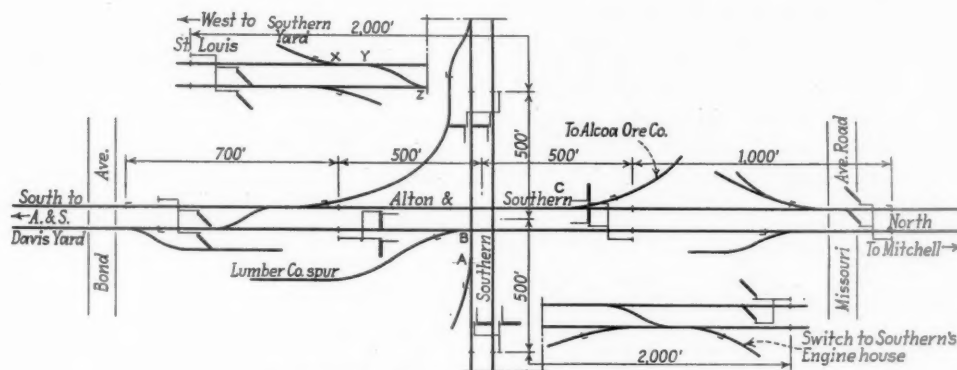
The Signals Are All Located on Bridges

within three or four years. The Alton and Southern, therefore, proceeded to install the automatic interlocking.

General Layout

The two double-track lines cross at right angles, with level grades and the track practically tangent. Train speeds are limited to 20 m. p. h. when approaching or passing over the crossing. The home signals are located 500 ft. from the crossing, and distant signals are located as shown on the diagram. All of the signals are "high" signals located on cantilever signal bridges. The signals are of the color-light type, the home signals displaying one of two colors, green or red, while the distant signals display a fixed yellow.

Several innovations are incorporated in the control



Track and Signal Plan of Automatic Interlocking

crossing. However, the initial cost of construction, as well as the cost of operation of such a plant, prevented authorization of the project. More recent investigation showed that by reason of the development of automatic interlocking, such a plant could be installed for much less than a mechanical or power plant and, that the money saved in operating expenses by such a plant, as compared with a manually-controlled installation, would be sufficient to pay the construction cost

arrangement for this automatic interlocking. As numerous switching leads connect with the main tracks in the areas which would ordinarily be used for approach sections, it was evident that such movements might tie up the plant too frequently. Therefore, it was decided to use no approach sections in the approach to the distant signals. With the scheme adopted, the home signals are normally dark, with the control circuits so arranged as to display green to the first approaching

train. The plant is arranged for the operation of trains in either direction on all main tracks.

As an example of the manner in which trains are operated when a southbound A. & S. train approaches the plant and passes its distant signal, it enters the approach section between the distant and home signal, and, as a result, the controls for all four of the home signals on the Southern are changed, prepared to display the red aspect in case an approach section on the Southern becomes occupied. The same condition is true for the opposing signal on the southward track of the A. & S. on which the train is approaching. However, both home signals on the northward track of the A. & S. remain at "Proceed" for either a northbound or southbound movement through the plant. The southbound train gets its home signal green, and after the rear of the train has cleared the home signal limits, the plant returns to normal. For a through movement of a train in either direction on either track of each road, the operation is similar to that just described.

Special arrangements are provided to handle cross-over movements. When a Southern freight train is ready to pull out of the yard, the brakeman reverses the main-line yard switch, marked X on the sketch, which lines up the plant for an eastbound movement on this normally westward main track. The trainman then reverses the two switches of the crossover marked Y-Z. This change takes the signals away from the previous route and sets up the signal for a movement through the plant on the eastward main track. The train then pulls out of the yard and through the plant, after which the switches are returned to their normal position by the rear brakeman. The switches outside of the home signal limits but within the approach section are equipped with push-button light-type indicators to convey information to trainmen as to when it is permissible to open a switch for a movement to a main track or over a crossover. As an aid in releasing the plant when a switching movement is being made on the main track which is not to enter the home signal limits, a trainman pushes a button located in a box near the switch, which effects a release so that the plant will line up automatically for other approaching trains.

Three main-line switches, marked A, B and C, are located within the home signal limits. When it is desired to make a switching movement from one of these industry tracks to the main line, the train is brought to a stop short of the fouling point. A trainman then proceeds to the switch and looks to see that the track is clear and that no train is approaching the crossing. He then throws the switch, which causes all the home signals to be set at Stop and remain so until the train has pulled out of the home signal limits and the switch returned to the normal position.

This automatic interlocking plant was installed by Alton & Southern forces according to plans prepared by the Union Switch & Signal Company, which also supplied the signaling equipment. The installation was handled under the jurisdiction of T. H. Pindell, general manager of the Alton & Southern, W. J. Nuebling, engineer of this road, being in direct charge of the construction.

THE GREAT WESTERN OF GREAT BRITAIN has recently placed orders which will involve the fabrication of 50,000 tons of steel for its use during 1934. Included is an order for 100,000 steel ties, totaling 10,500 tons; one for 10,000 tons of chairs and others for 30,000 tons of rail. This road, the largest user of steel ties in Great Britain, already has some 400,000 of these in its lines, the routes so fitted being equivalent to 185 mi. of track.

Freight Car Loading Increases

WASHINGTON, D. C.

REVENUE freight car loading in the week ended December 16 amounted to 554,832 cars, an increase of 17,329 cars as compared with the previous week and of 39,063 cars as compared with the corresponding week of last year. This was the first time since 1919 that loading has shown an increase at this time over the preceding week, instead of the usual seasonal decline. As compared with 1931 the total was a decrease of 26,338 cars. Increases as compared with the week before were shown in the loading of grain and grain products, ore, coal, coke and live stock, while increases as compared with the corresponding week of last year were shown as to miscellaneous freight, grain, forest products, ore, coke and live stock. Miscellaneous loading showed a reduction of 2,460 cars as compared with the previous week but an increase of 44,002 cars as compared with last year. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading			
Week Ended Saturday, December 16, 1933			
Districts	1933	1932	1931
Eastern	126,386	121,245	128,516
Allegheny	106,056	96,647	115,298
Pocahontas	38,315	40,301	36,666
Southern	84,021	79,594	90,094
Northwestern	64,702	59,537	66,751
Central Western	86,595	75,500	91,803
Southwestern	48,757	42,945	52,042
Total Western Districts.....	200,054	177,982	210,596
Total All Roads.....	554,832	515,769	581,170
Commodities			
Grain and Grain Products.....	29,810	25,491	28,412
Live Stock	17,470	17,194	21,133
Coal	125,268	144,803	119,819
Coke	7,651	6,678	5,446
Forest Products	19,887	11,861	18,151
Ore	3,369	2,053	4,223
Merchandise L.C.L.	159,413	159,727	191,924
Miscellaneous	191,964	147,962	192,062
December 16	554,832	515,769	581,170
December 9	537,503	520,607	613,621
December 2	495,425	547,095	636,366
November 25	581,347	493,318	558,798
November 18	599,289	572,623	653,503
Cumulative Total, 50 Weeks.....	27,983,221	27,280,141	36,207,623

Car Loading in Canada

Car loadings in Canada for the week ended December 16 totaled 38,888, which was an increase over last year's loadings of 2,394 cars and a decrease from the previous week's of 713 cars. This decrease was less than seasonal and consequently the index number rose from 59.25 to 62.58.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
Dec. 16, 1933.....	38,888	18,574
Dec. 9, 1933.....	39,601	18,492
Dec. 2, 1933.....	42,328	18,443
Dec. 17, 1932.....	36,494	17,697
Cumulative Totals for Canada:		
Dec. 16, 1933.....	1,967,174	923,608
Dec. 17, 1932.....	2,118,791	941,351
Dec. 12, 1931.....	2,501,283	1,242,878

THE SOUTHERN OF GREAT BRITAIN has recently added 23 route miles to the electrified section of its lines, which is said to include the largest suburban electrified system in the world. The extension, on which the third rail direct current system will be employed, involved an expenditure of more than £500,000.

The Passenger Salesman Replies

Weaknesses in organization primarily responsible for most cases of poor salesmanship

FOLLOWING the publication of the article, "Is Railway Passenger Service Properly Sold?", in the *Railway Age* of September 30, page 457, much discussion of the problem of selling railway passenger service has ensued. Hundreds of copies of the issue and thousands of reprints of the article have been distributed among passenger salesmen by railway traffic officers with requests for comments and suggestions that might prove of value in increasing the efficiency of the railway sales organization. The comments received by the traffic officers and by the *Railway Age* are significant in that they are the opinions of men on the "firing line." Extracts of a number of these letters and comments appear below.

In general, the replies commend the article on the ground that "a great deal of good can come from an article of this kind, for it makes one stop and think" and "a check-up at times does not hurt anyone who has an interest in his work." Many of the replies naturally reflect a defensive attitude. One salesman said, "At first, one is apt to criticise the methods used in obtaining the material for the article but on second thought, it is a practice which the railroads should be following themselves,—inspecting their salesmen frequently to detect poor salesmanship and instead of dismissing or reprimanding the employee, taking the necessary steps to correct his mistakes." Another writes, "While the article seems unfair in some respects, if we look at it as helpful criticism, much may be gained." Still another says, "While I believe the article biased, I am in sympathy with it, for it may be the means of awakening a deeper interest in the merchandising of passenger transportation," and another replied, "I am glad the article appeared, for it is well to have our faults brought vividly to our attention so as to impress us with the necessity to improve."

Training Needed

One of the things mentioned most frequently in the salesmen's comments is the need for better training. One salesman said, "How can expert salesmanship be expected when little effort is made to instruct salesmen in the principles of selling, the variations in human nature and in the analyzing of tariffs, circulars and other instructions." Another writes, "I think a good plan would be to bring salesmen together at intervals to express their views, discuss rates, routings, etc., and to listen to a talk on salesmanship by a qualified person. If the problems and questions of salesmen could be secured before meetings, their difficulties could be used as the basis for constructive discussion." Another replied, "No class of railroad work requires more time, effort, patience, tact and understanding of human nature than that of a ticket agent. Therefore, the proper men should be selected and those qualifying should be given a thorough training before they are permitted to come in contact with the public."

Another writes, "The railroads make spasmodic attempts to pep up their salesmen, but it is not carried on in a system-wide, day-to-day and year-to-year manner. I believe a sales instructor, highly skilled and well

versed in both freight and passenger traffic problems could be profitably employed by every railroad. This expert could develop uniformity of ideas through group meetings with ticket sellers. Once or twice a year he could hold general meetings with solicitors and give sales instructions. At these meetings, demonstrations in approach and sales talks could be made by the men themselves."

Another said, "A pleasant smile, clean teeth and hands, a courteous bearing and a real (not forced) willingness to serve the prospective traveler without being patronizing, mean a great deal behind a ticket counter. Added to that, an occasional compliment from a superior officer and less belittling of the employee by constant reminders that infer that he is not a "salesman" and that create an inferiority complex, might tend to increase the employee's usefulness and ability to sell his company's products."

Railway Sales Methods Have Not Kept Pace with Those of Competing Agencies

Have railway merchandising methods kept pace with those of their competitors? Are the railways selling passenger service as effectively as they should be? "In my humble opinion," writes one salesman, "I would say no. It is not altogether the fault of the ticket agent or the ticket seller, nor is it the fault of executives. It is the fault of the conditions thrust upon the industry, for no other industry is so handicapped, no other is governed by men who do not have a practical knowledge of the business, no other industry is so burdened with taxes and no other is compelled to economize as are the railways. Railway selling forces have been reduced too far and in addition, trained passenger salesmen have been replaced by men not nearly so well qualified." Another said, "How can passenger service be properly sold when seniority places telegraph operators and freight handlers without any interest in selling and without any training or knowledge of selling behind the counter to deal with the public whom they have never faced before?" Another said, "Divorce the operating department from the sale of passenger service so that salesmen, instead of operating men, are in depots and there will be a decided improvement in salesmanship as a whole."

Is the sales organization properly equipped and instructed to perform its work? "No," replied one salesman, "they are not. Railway officers have set up such an intricate rate structure and set of rules that most salesmen, and surely the public, cannot understand them." Another commented, "Tariffs, circulars and instructions in volumes, books, pamphlets and single sheets; printed copies, photostats, mimeographic reproductions, typewritten sheets. From these the salesman must select the important information and construct his own sales talk. Little, if any, assistance is given him. Instead of reams of circulars, some of which are of great importance and others of little value in the sale of tickets and the solicitation of business, the ticket agent should receive weekly letters which keep him informed, which would aid him in developing sales arguments and which would

enable him to present to each prospect information about the service of connecting railroads, about his own lines and even about competing railroads." Another said, "The average passenger tariff is complicated, is susceptible to a multitude of interpretations and is governed by 'notes' and 'exceptions'. In addition, the conditions surrounding the sale of tickets in one passenger association territory are radically different than those in another. These factors are hard to understand and still harder to explain. They encumber selling."

Another replied, "And now comes the rate situation on December 1, more complicated than ever. Different rates are in effect in different territories and on different railroads in the same territory. One territory cannot recognize the action of another and as a result, the passenger will travel to his destination on one fare and return on another. If a passenger travels over several railroads through more than one territory, should he be sold a through ticket which does not give him the advantages of all the low rates in effect or should he be instructed to rebuy at various points along the way? In either case he will not be pleased."

Another said, "Prior to December 1, air lines advertised that the cost of flying was no more than the rail fare plus the Pullman fare. With the reductions in effect, this is not true and the railroads have the advantage. What are the railroads going to do about it?"

Confusing the Prospect

Confusing the prospect is discussed by several. One salesman writes, "I defy any ticket seller in Trunk Line territory to have answered the simple question of available fares to A Century of Progress without confusing the mind of the average person. There were different fares on different dates, with different limits and with different privileges". Another replied, "Try and make the prospect understand why a lot of rules and requirements are placed on tickets when one or two railroads are violating the requirements. Try and explain why a 50 per cent concession is made to clergy and supposed clergy, ex-soldiers, questionable charitable organizations, etc., when the prospect is complaining of high standard rates. Try and satisfy the regular patron when he complains that reduced rates are placed in effect on Tuesdays and Saturdays or days on which he can't use them. He knows that he is being forced to pay the full fare. One passenger who complained said, 'Suppose an automobile dealer endeavored to charge persons actually requiring cars \$1,500 and persons using the same cars for pleasure \$1,000. How many cars would be sold by a dealer with such a policy?' On top of all this, try and vindicate the railroad when the customer returns and asks, 'How come, the information on the ticket (an obsolete contract) does not conform to what you told me?'" Another said, "Much of the prospect's confusion may be traced directly to jealousy existing among the railroads themselves. As a result of too much competition among the railways, the salesman is handicapped in the presentation of effective sales arguments because he is afraid he will show favor to one or a group of railroads to the disadvantage of their competitors or his own railroad. In trying to be impartial, the salesman describes all the facts and because the story is far from simple, confuses the prospect."

Station Facilities Inadequate

Facilities for selling at stations also were discussed. One salesman said, "One of the weakest spots in selling passenger service is the depot, particularly in large cities where most people are in a hurry and the salesman does

(Continued on page 910)

Fewer Crossties Inserted in 1932

In 1932 the Class I railroads of the United States installed 39,175,741 wood crossties in previously constructed tracks, a decrease of 12,310,886 ties, or 24 per cent, as compared with the number installed in the previous year, according to figures issued by the Bureau of Railway Economics. The accompanying table lists the total number of crossties inserted, for each year from 1920 to 1932, inclusive, and also shows separately

	Untreated Ties No.	Treated Ties No.	Other Than Wood Ties No.	Total, All Crossties*	Switch and Bridge Ties Ft. b.m.
1920	48,631,543	37,792,431	154,378	86,829,307	246,195,929
1921	49,238,665	36,071,989	536,188	86,521,556	256,287,730
1922	45,212,085	40,629,943	554,250	86,641,834	258,186,478
1923	42,072,140	41,655,616	447,002	84,434,985	277,615,107
1924	38,317,244	44,489,687	3,360	83,073,059	291,288,388
1925	32,623,486	50,089,966	3,222	82,716,674	282,629,608
1926	25,184,662	55,557,706	3,141	80,745,509	275,971,880
1927	21,240,053	57,082,993	17,136	78,340,182	259,996,468
1928	18,191,677	59,157,540	21,724	77,370,941	269,149,270
1929	15,614,898	59,047,380	17,097	74,679,375	250,062,751
1930	13,618,718	49,720,080	15,030	63,353,828	235,314,604
1931	11,658,836	39,827,791	15,032	51,501,659	188,594,522
1932	9,740,686	29,435,055	14,732	39,190,473	140,565,691

* From 1920-24, inclusive, these figures include second-hand unclassified wood ties in the following amounts: 1920, 250,955; 1921, 674,714; 1922, 245,556; 1923, 260,227; and 1924, 262,768.

the untreated and treated ties, and ties other than wood inserted, as well as the number of board feet of switch and bridge ties that have been installed.

Switch and bridge ties placed in existing tracks in 1932 amounted to 140,565,691 ft.b.m., a reduction of 48,028,831 ft.b.m., or 25.4 per cent, below the same figure for 1931. The number of ties other than wood, however, remained practically constant, 14,732 having been installed in 1932 as compared with 15,032 in the previous year. This classification represented only 0.04 per cent of the total number of ties installed.

While the number of treated crossties declined 26 per cent as compared with 1932, the number of untreated ties decreased only 16.5 per cent. As a result, the proportion of untreated crossties installed increased from 22.6 per cent of the total in 1931 to 24.8 per cent in 1932.

These figures should not be confused with the statistics covering the crossties treated in 1932, prepared by the forest service of the United States Department of Agriculture in co-operation with the American Wood-Preservers' Association, and published in abstract in the *Railway Age* of September 23. While the latter figures showed that 35,045,483 crossties were treated in 1932, the table published here shows that only 29,435,055 treated ties were installed in existing tracks during the year, the discrepancy indicating that a considerable portion of the treated ties were carried over. However, a part of the difference is accounted for by the ties inserted in new tracks constructed during the year.

THE RAILWAY EXPRESS AGENCY and the Western Union Telegraph Company have entered a joint agreement whereby telegraph service has been inaugurated at Express Agency offices in 460 cities throughout the country. The agreement was reached, an announcement issued on December 1 said, because officers of the two companies believed that added convenience to the public would be the result of having facilities for filing telegrams at places where shippers, the traveling public and other users of express service congregate.

The Basis of a Rail Relay Program*

Factors to be considered in making an equitable allotment to
the various units of a system

By C. W. Baldridge

Assistant Engineer, Atchison, Topeka & Santa Fe

BUSINESS conditions throughout the country during the last few years have demonstrated that the real basis of a rail relay program at present is the ability of the railway to produce or secure the money necessary to pay the bill. However, the basis of a rail relay program, taken in its general sense, should be the need of renewal and such other conditions as influence that need. Obviously rail is in need of renewal when it is worn out. A few years ago rail was worn out when the batter and wear of the ends had reached such a stage that it was impossible to keep the joints surfaced up to a good riding condition except at a prohibitive cost for maintenance work. In those days the only remedy for chipped, battered and worn rail ends was to take the rail out of track and saw off the ends, redrill and relay it. As a matter of fact, this usually meant the purchase of new steel to replace the rail taken up and sawn, and the reuse of the old rail in less important tracks.

Conservation Reduces Demand

The first relief from this condition came with the building up of damaged and worn rail ends by welding in the track. Later the repairing of the rail ends was further aided by the development of processes for reforming the joint bars and the refinement of grinding the built-up rail ends to a true surface. As a result of these developments, rail is no longer in need of renewal as soon as low joints have developed.

In a recent study of the necessity for the renewal of rail, it was determined that by building up 63 per cent of the rail ends and applying reformed joint bars to about 70 per cent of the joints, the rail could be made to last several years longer. The cost of this work, compared with that of laying new rail, was as follows:

The cost of relaying new 110-lb. rail (exclusive of resurfacing and lining), \$14,057 per mile.

The cost to build up 63 per cent of the rail ends and apply reformed joint bars, \$602 per mile.

Definite Savings Realized

The difference in cost per mile would, therefore, be \$13,455, and the interest on this sum at 5½ per cent amounts to \$740 a year. Therefore, these figures show that an increase of about one year in the life of the rail will pay for the repairs made, and all additional life is clear gain. Thus, the development of methods for repairing rails in track has produced a great saving in railway maintenance costs. Not only does the added life of the rail represent a saving, but the repairing of chipped and battered rail ends each year results in a large saving in maintenance labor that would otherwise be spent in surfacing up the low spots which result from such joints.

Because of these improvements in the repair of rails, the determination of when rails are worn out must take into account the abrasive wear which has taken place throughout the length of the rail, the number or in-



creasing frequency of rail failures, the number of wear spots and driver burns, and the resultant decrease in the strength and durability of the rails. In many cases the number of permanently kinked and bent rails and of rails chipped or damaged in various ways become a factor in their wearing out. Just when by reason of any, or all, (usually all) of these conditions, the rail may be said to be worn out is a question upon which there is likely to be considerable difference of opinion. Consequently, the method of arriving at the necessity for the renewal of rail is somewhat different on various railways, but in the main the process is the same. The chief differences in the methods of determining the need for rail renewals followed by different roads lie in the manner of conducting inspections and the degree of refinement observed in studies and measurements made.

Starts With the Roadmaster

Naturally, the initial listing of rail for renewal is made on nearly all railways by the roadmasters or supervisors, because they maintain a more intimate contact with the actual track conditions than any other maintenance of way officers. On most railways a more or less definite date has been established on or before which the roadmasters must submit statements of rail which in their judgment will require replacement in the coming season. In some cases they receive notice of the time for such reports.

From the roadmaster the renewal list is sent to the division engineer or division superintendent, where the lists for the division are checked, and the locations which are approved by the division officers are consolidated and forwarded to the general superintendent, chief engineer, or other grand-division or system officer. Here again, the lists are checked and the locations approved are consolidated, after an inspection has been made by some officer whose jurisdiction makes him equally responsible for conditions on all parts of the railway, and who is, therefore, better able to decide which of the locations listed for renewal should take precedence in case the rail in all the locations recommended cannot be, or do not need to be, renewed during the approaching relay period. After such an inspection has been completed

* Abstract from a paper presented before the Maintenance of Way Club of Chicago.

and the list has been revised as a result of the observations made, it is usually forwarded with specific recommendations to the general manager for his approval and is then sent by him to the operating vice-president or is returned to the chief engineer for transmittal to the vice-president.

This routine varies, of course, on different railways. However, one of the essential features of the plan is that the recommendation that goes into the hands of the executive officer, should be made by some one who is equally responsible for renewals on all parts of the system and, therefore, informed as to where new rail is most needed.

Other Factors Involved

Many factors enter into the decision on which the allotment is made eventually. Not all of these relate to the condition of the rail, and among those that must be considered where financial conditions limit the rail renewals to an amount below what is actually needed, are:

(1) The allotment of new rail to such locations (otherwise equal) as will release rail for main-track repairs at various other points in a way that will minimize the hauling and distributing of the second-hand rail.

(2) The allotment of rail to localities of greatest hazard to traffic from possible failures in the old rail if it were not replaced.

(3) The allotment of rail to locations of greatest traffic density or of greatest wear of rail.

In the making of inspections, on the other hand, a variety of conditions have a bearing on the relative urgency of making renewals. For example, the reports prepared from the data collected in the course of rail inspection on one large railway cover the following features:

- (1) Location of the rail to be renewed.
- (2) Amount of track involved.
- (3) History of the rail.
 - A—Brands—or make and section.
 - B—When laid.
- (4) Kind of ballast.
- (5) When last surfaced out of face.
- (6) Pertinent data.
 - A—Maximum grade.
 - B—Alinement—amount and degree of curves.
 - C—Turnouts—kind—number of each kind.
 - D—Signals—kind.
- (7) Rail failures and connecting rail.
 - A—Failures within the locality—each year that the rail has been in track.
 - B—Rails of known transverse-fissure heats still in track.
 - C—Adjoining rail—weight and age.
- (8) Traffic density.
 - A—Volume of traffic handled by the rail listed for renewal.
 - B—Characteristics of locomotives in use.
- (9) Details of inspection.
 - A—Wear-spotted rails—per cent of total.
 - B—Driver-burned rails—per cent of total.
 - C—Chipped-end rails—per cent of total.
 - C2—Depth of chipping—average.
 - D—Batter and wear of rails at ends—average depth.
 - E—Expansion space left between rail ends.
 - E2—Average temperature of rails when inspected.
 - F—Kinked rails.
 - G—Kind of joints in use.
 - G2—Per cent of rail ends repaired by welding.
 - H—Condition of rail that is located on curves.
 - I—Ties—per cent requiring renewal if rail is relaid.
 - J—Line and surface of track.
 - K—Condition of tie plates—brine eaten, etc.
- (10) Rail contours.
- (11) Results of inspection—comments, etc.
- (12) Recommendations.

Details of the Inspection

The inspections are made by riding over the track on a small motor car run at a speed slow enough (10 to 15 miles per hour) to permit the inspector to see, and record on tally counters, the number of wear-spotted

rails, of driver-burned rails, and of defective rails, if any. Where the stretch of track involved does not exceed six or eight miles in length, stops are made at six or eight places. Where longer stretches are listed for renewal, stops are made at intervals of one to two miles. At such stops, contours are taken of both rails, and measurements are made of the depth of the batter and wear at the rail ends and the amount of space left for expansion at 10 joints (5 on each side of the track); and at three or four times during a day the temperature of the rail is taken with a thermometer placed first on the base of the rail on the shady side and then on top of the rail in the sunshine. In addition a check is made of the number of ties, out of one hundred, which will need renewal if new rail is laid.

While making the measurements of the depth of batter at rail ends notations are made of the rail ends that have been repaired by welding, of any rail ends that have chipped, and of any joint bars that are cracked, etc. The conditions of the track as to line, surface, etc. are also observed and recorded by the inspector as he passes over the rail involved, since this information also has a bearing on the decision finally made.

The Passenger Salesman Replies

(Continued from page 908)

not have time to go into detail. Where there is sufficient business, depot ticket offices should be so arranged that customers seeking advice or information can be segregated from those clamoring for tickets while the salesman is trying to answer some one seeking information. If facilities were provided for each type, the impatient customer would not be downing the railroad, the salesman and the person holding up the line. At the same time the salesman handling the prospect seeking information would have the time and the proper environment in which to do a good job of selling". Another said, "Because of the facilities at the depot, the salesman must concentrate on selling tickets. To him it is more important to grab the money which is in evidence than to direct attention to possibilities that are remote and run the chance of losing the sure sales".

In discussing the advantages enjoyed by competing transportation agencies, one salesman said, "It should not be surprising if the buses and airplanes perform good salesmanship for some of them have better facilities in their ticket offices than most railroads. Some of the offices of competitors are void of wickets and counters. The prospect is seated in a quiet corner or in a separate room where he is not distracted by other customers crowded against him and where he feels free to discuss his personal affairs without the fear of being overheard by those around him".

These unsolicited comments, which were inspired by the article, are significant. In the first place, they clearly signify that some salesman have an intelligent understanding of passenger problems and are eager to develop a more efficient sales organization. However, the salesmen also realize that they are not in a position to initiate improvements and can only offer suggestions which, in their minds, will improve selling methods. In the second place, the comments indicate that the purpose of the article, which was to direct attention to conditions prevailing on railroads, and stimulate discussion which would result in corrective measures, has been realized. Much discussion has occurred and methods for aiding salesmen have been instituted on several railroads.

What Is "Merchandising"?

Consisting of advertising, salesmanship and "showmanship",
the railways need it sorely to help them revive
the popularity of travel-by-rail

By James M. Campbell *

IN practically every issue of the *Railway Age* during the last two years, attention has been directed to the fact that if the railroads are to hold their own—much less regain—any large part of the traffic they have lost, they must "merchandise" their product more aggressively and with greater intelligence than in the past. It has been pointed out that ways of doing business which might, at one time, have been defended on the ground that they were "good enough" have no place in the railroad picture of today.

What, precisely, is merchandising? Is it just another name for advertising? How can it be applied to the solution of the railways' problems? These and other similar questions, often heard from railway men, indicate how far from clear is their understanding of the term which represents a form of sales-promotion activity recognized as essential in increasing the public consumption of any product.

Purpose of Merchandising

The purpose of merchandising is to increase sales. Merchandising accomplishes its purpose precisely to the extent that it succeeds in "putting a halo" around the product (or service) offered for sale. Advertising is not merchandising, though it is an important factor in it. Salesmanship is not merchandising, though it, too, is an important factor. What then is merchandising? For present purposes this definition will suffice: Merchandising is advertising, plus salesmanship, plus something which, for want of a better word, might be called "showmanship."

Travel-by-rail is advertised, after a fashion. It is sold, sometimes intelligently, sometimes unintelligently. But it has never been merchandised, because it has never been *dramatized*. Dramatization—showmanship—is something travel-by-rail sadly needs. Of all industries, the railroad lends itself most readily to dramatization, for the basis of it is power, motion, variety. Why has it never been dramatized? There are two reasons. One is that for 60 years, more or less, the railroads had a practical monopoly of land transportation and—let us be frank—got into a rut. The other is that, now that they are no longer "top dog" in their field, they don't quite know how to tackle the job. In all seriousness, the writer suggests that they employ someone who does know. A man with half the imagination of "Roxy," for example, could remake travel-by-rail so that it would hardly be recognizable—not by costly structural changes in cars but by utilizing *sound* and *color* in ways that would add immeasurably to the pleasure of travel by train. There is nothing revolutionary in this. At bottom, it is very much like designing a new wrapper for a slow-selling toilet soap or a new carton for a breakfast food which has not "caught on," or a new style of body

for an automobile. The thing itself is not changed; the way it is presented to the public is changed.

Passenger Agents' Hands Are Tied

It is a reflection on the intelligence of railroad passenger agents to intimate that they have never given thought to the matter of dramatizing travel-by-rail. They have. Some of them have translated their thoughts into action. But, with few exceptions, railroad passenger agents are in a rather unenviable position these days. Final authority is not in their hands. Their requests for appropriations for promotional purposes usually fall on deaf ears. Meanwhile, travel-by-rail declines. Is there any reason to believe it will not continue to decline if more aggressive methods are not adopted?

In this connection, railroad passenger agents might well ask themselves a few questions. These, among others: On what basis do they choose the advertising agency through which their advertising is placed? Is it because the man who represents it is a "good fellow," is a friend of a friend of the president, is willing to handle the account on a "cut" commission, or is the son-in-law of a big shipper? Believe it or not, many a railroad advertising account has gone to this agency or that for just such reasons as these.

How Can Rail Travel Be Dramatized?

Granting that dramatization—showmanship—is an important factor in merchandising and that better merchandising is needed if the railroads are to recapture any large part of the traffic they have lost, this question arises: How can travel-by-rail be dramatized? Intelligent use of *sound* and *color* will go a long way in that direction. "But how," someone asks, "can color be utilized?" By the use of flags, badges, buttons, medals, rugs, rolls of carpet leading to car steps, as well as by seasonal changes in uniforms of station and train employees. (A case in point: An air-conditioned train is not dramatized unless the conductor and brakemen, the Pullman conductor and porters and every member of the dining car crew are garbed in white.)

Dramatization—showmanship—need not be restricted to trains or important terminals. Beauty spots, great industries, scenes of historic interest can be dramatized with profit to the railroads and satisfaction to their patrons. For example, here and there along their lines, the Union Pacific, the Southern Pacific and the Santa Fe might reproduce the pageant of the past—the westward march of the pioneers, the days of '49, Indians afoot and on horseback, cowboys, herds of buffalo. The tire-some waits at division stations could be transformed into pleasant experiences. Two examples will suffice to make this clear. The Golden State Limited pauses for 15 min. at El Paso, Tex. With a little encouragement and the privilege of "passing the hat," a band of Mexican musicians would be delighted to serenade its passengers. The North Coast Limited, both eastbound and west-

* The writer of this article, following nine years in railroad service, was for eight years engaged in the promotion of sales for a large soap company and for three years as a member of the organization of an outstanding advertising agency.

bound, makes a 10-min. stop at Mandan, N. D. Indians from the nearby reservation would like nothing better than to perform a war-dance on the station platform. It wouldn't cost the Northern Pacific a cent!

The writer is not urging the railroads to go into the show business. He is merely trying to point out that, at small cost and with relatively little trouble, travel-by-rail can be made infinitely more interesting than it is. It must be, if it is to live and flourish.

Salesmanship Not Most Important

As was said at the beginning of this article, salesmanship is an important factor in merchandising. Is it the most important factor? The writer does not believe it is, in the case of the railroads. Advertising of the right kind will bring people to railroad ticket offices. If there they are given the consideration which buyers expect of sellers, everything will work out as it should. The difficulty the railroads face is not to sell tickets to those who want to buy them and come to their ticket offices with that in mind. *It is to get people to come.* The disparity between rail and bus fares has been so great that millions upon millions of men and women seem to have lost sight of the fact that the railroads are still in the business of transporting passengers. They have acquired the "bus habit." Is there any reason to suppose they will give it up if nothing is done to make them do so? Thoroughly first-class advertising will go a long way in that direction. So will showmanship.

The writer is not among those who lose no opportunity of saying that railroad advertising is pretty poor stuff. But it isn't as good as it ought to be, or anywhere near it. And it isn't as good as it must be if it is to do its job of re-establishing the railroads in the good opinion of the traveling public. The writer is convinced, however, that no real progress in the way of better railroad advertising is possible until—and unless—very considerable changes are made in the "set-up" of the railroads.

Six Suggestions

In his opinion, this is what needs to be done:

First, travel-by-rail must be dramatized.

Second, advertising agencies must be chosen for no other reason than competency. The fact that an advertising agency is willing to do business on a "cut" commission basis is, usually, a very good reason why it should not be considered.

Third, railroad advertising agents must be paid the salary and given the status which are theirs in other industries. If they are not, they will do what scores of other men have done—go where their ability is recognized for what it is worth. They should have jurisdiction over all the promotional activities of the companies with which they are connected. They should have appropriations which will cover every promotional activity—travel-by-rail advertising, "development" advertising, "educational" advertising. They should act as liaison officers between the outside world and heads of departments of the railroads which employ them. That is, they should consider all proposals which have to do with advertising, discuss them with heads of departments whose interests are involved and dispose of them one way or the other. If this is done, authority will be centralized, responsibility will be fixed and objectives clearly defined.

Passenger department advertising should be "pooled" wherever possible. The joint advertising of excursion rates to the World's Fair, which the Baltimore & Ohio, the New York Central and the Pennsylvania did last

summer, proves the entire practicability of combined effort.

Passenger department advertising should be *fact-full*, rather than *claim-full*. The traveling public is fed up on ballyhoo. What it wants is information. When do trains leave? How are they equipped? What is the fare? This information, in condensed form, should be printed in every issue of every newspaper in every city in the United States.

Common problems—that is, problems which confront all railroads everywhere—should be solved by common action. That may mean the use, on a long-time basis, of costly advertising space in the nationally-circulated publications. Well, what of it? What the railroads want is the good will of the American public.

Competition on All Sides

The desires of most men are limitless; their ability to satisfy them is limited. Food, shelter and clothing are first on the list of man's needs. Business, as conducted nowadays, is a constant struggle for the money which remains in people's pockets after the basic necessities of life are provided.

Hence, every conceivable kind of industry is engaged in never-ending competition with every other industry. The belief, once general, that competition is confined to the various units which make up a given industry, is not soundly based. Whether they realize it or not, the railroads are competing with every other industry in the United States. And precisely as these other industries succeed in marketing their products, the market for what the railroads offer is lessened.

The more effectively a product (or service) is advertised, the easier it is to sell. But the less the public knows about it, the more difficult it is to sell. It might even be said that a product (or service) of which no one knows anything is non-existent in so far as profit possibilities are concerned.

The railroads are deceiving themselves if they think they can sell their product by the continued use of methods, the ineffectiveness of which has been proved. But if they will make such changes in organization and in their attitude toward advertising as will enable them to "merchandise" what they offer, there is a first-class chance that they will get somewhere.

Belgian Refrigerator Car Is Mechanically Cooled

(Continued from page 904)

coils of the direct air cooler, passed down this air duct and blown through small holes into the cold chamber. The cold air drops evenly over the cargo to the gridded floor and is returned through the grid at the bottom of the bulkhead to pass again over the evaporating coils.

Altek cars are reported to have hauled more than 2,000,000 tons of perishables with a loss of only 1.6 per cent. This record has been made despite the fact that shippers often select the Altek cars to handle the most difficult type of ladings. For example, an Altek car carried without loss from Pietra Ligure, Italy, to London, 175 cases of a variety of peach that never before had been transported even as short a distance as to Milan without a 30-per cent to 50-per cent loss. The peaches carried by Altek arrived in London in excellent condition and all were sold. Choice game, such as hare and pheasant, shipped in Altek cars have repeatedly brought premium prices in European markets.

The Air Conditioning Problem*

A study of equipment now available, indicating how it can best be used to meet railroad requirements

By F. L. Sahlmann

Transportation Engineering Department
General Electric Company

[In the first part of his paper Mr. Sahlmann discussed the economic reasons for air conditioning and the requirements of a satisfactory system. He lists the requirements of a passenger car air conditioning system in the following order: 1. Compactness; 2. Lightness; 3. Reliability; 4. Simplicity; 5. Accessibility; 6. Proper temperature regulation and freedom from drafts; 7. Quietness; 8. Economical power consumption; 9. Low first cost; 10. Low operating cost. In the latter part of his paper, which follows, he discussed the qualities of the systems now available—EDITOR.]

In general, all equipments now in service can be placed in three distinct classes, as follows:—

1. Ice
2. Steam Jet
3. Mechanical
 - (a) Direct axle drive
 - (b) Electric drive

Each of these systems requires power to a greater or less extent. In general, two sources of power are available, namely head end from the locomotive or an auxiliary power plant, or individual generators and batteries on each car. Where steam is used for refrigeration, head-end steam supply (from the locomotive) is a logical choice, since both the steam and the steam lines are already available except on electric locomotives where the oil-fired boilers would have to be operated solely for this purpose.

Head-End Electric Power Supply

For electric power, the head-end system does not offer as many advantages. If steam turbo-generators are used, the efficiency is low and the cost of power high. Head-end, Diesel-engine-generator equipment would give power costs comparable to present costs using axle-driven generators, but in the larger sizes, such equipment is so large that it cannot readily be mounted on the locomotive or tender, but must be mounted in the baggage car, where it occupies valuable space and requires special attendance and adds appreciably to the train weight. However, the principal objection to the head-end system is its inflexibility and the fact that an electric train line would be required in *all* cars in operation if this system is to be generally used. Where equipment is always operated in the same train with no foreign cars, such as in the new stream-lined trains now under construction, the head-end system does not have these limitations. However, on existing equipment, the practical difficulties, due to its inflexibility and the high cost of equipping all cars with an electric train line, will probably prevent its adoption. This applies to trains with steam as well as electric locomotives, since it is not so much the source of electric power which introduces the difficulties in the head-end

system, as the distribution or transmission line, and the inflexibility which results.

Individual internal combustion engine drive, with an engine under each car has been tried but abandoned because of unreliability, high cost, noise, vibration, fire hazard due to the fuel used, etc.

Power from the Car Axle

The axle-driven generator system, with a battery for stand-by power, is almost universally used at the present time for car lighting. Although the cost and maintenance are high, yet when all things are taken into account, it is without a doubt the most flexible system, since the car has power available at all times, either standing or in motion, and irrespective of the train make-up or the type of motive-power.

The axle-driven generator as used on cars for lighting only, varies in size from 2 to 5 kw. with a few machines of 7½ kw. rating and in general can be successfully driven by a flat belt from a car axle, although maintenance in winter presents serious problems. When air conditioning equipment is used, the *electrical* power demand including 3 kw. for lighting is approximately as follows:—

Ice	4 kw.
Steam	6 kw.
Mechanical	
Direct Drive	4 kw.
Electric Drive	12 to 15 kw.

These figures do not represent the total additional power needed in the locomotive. All systems add to the weight of the train and hence to the power consumption. In addition, the steam system uses steam directly from the locomotive boiler and the direct drive mechanical system uses power from the cylinders for direct drive of the compressors. Of all the systems used, the ice system affects train performance to the least extent, due to the fact that power is not required for producing refrigeration, as is the case with the other systems, which except for differences in efficiency affect train performance to practically the same extent.

Depending on the service in which the car operates, the size of battery and generator must be increased. With the ice and the direct-drive mechanical system, it is frequently possible to use the same generator or the next larger size, up to 5 kw., which is generally considered the maximum capacity which can economically be driven by a flat belt. For the steam system, a second generator is frequently used, together with a larger battery. For the steam and the electro-mechanical systems, the increase in electrical demand is such that a single conventional generator with flat belt drive for lighting and air conditioning is not practical. Various types of so-called "positive" drives are now available for this service. The total connected load on a system of this kind, including lights, may be from 12 to 15 kw. However, the generator which supplies the power must not

*Abstract of a paper presented at the winter convention of the American Society of Refrigerating Engineers.

only be able to take care of air conditioning and lights, but simultaneously recharge the battery which may be practically discharged after a long station pre-cooling period. The generator should be of sufficient capacity that it can put a large "slug" of power back into the battery when the opportunity presents itself—that is, when the train speed is above 20 miles an hour. Experience has indicated that a generator having a rating of 20 kw., and a cut-in speed of 20 to 25 miles an hour, will provide all the power required and keep the battery charged in service where the average length of run is as low as 20 miles between stops, even though the battery is practically discharged before leaving the terminal. The use of a 20-kw. generator results in a twofold advantage: (1) It provides power at the lowest unit cost (direct from the locomotive), and (2) eliminates the necessity for large and expensive terminal charging facilities, which take on serious proportions where entire trains or several trains must have batteries charged simultaneously. In addition, with axle-driven generators of this capacity, the original lighting generator is removed from the car, and the maintenance reduced by that amount.

Although a 20-kw. generator rating is mentioned, this does not mean that it is operated at full load continuously. In fact, its average load over 24 hours operation is probably not over half of this value. In the first place the air-conditioning load, under average conditions, does not require continuous operation of the air-conditioning equipment, and in the second place the lighting load is connected but a few hours in the evening, when the demand on the air-conditioning equipment has decreased appreciably. However, the 20-kw. rating is needed to take care of peak conditions and to quickly recharge the battery at the first opportunity.

Pre-cooling

Wayside power to provide for pre-cooling is to be had in three forms, namely as steam, low voltage d. c. and 220 or 440-volt, 3-phase, 60-cycle alternating current. For the steam jet system, steam for pre-cooling must be supplied either from a locomotive or from the yard steam lines. In most yards the steam plant is shut down during the summer months, with the result that if steam is to be used from the yard steam lines for air-conditioning, the steam plant must be kept in operation solely for this purpose. Even though the steam lines are available the cost of steam power for pre-cooling will be comparatively high. Low voltage d. c. power (32 or 64 volts) is available in most terminals and yards for battery charging. Because of the low voltage and heavy currents involved it is generally considered impractical to use such power for pre-cooling, at least where entire trains are involved. As a result on the mechanical systems provision is frequently made for pre-cooling and battery charging from a 3-phase, 60-cycle, 220 or 440-volt source of wayside power, by using an induction motor which drives the compressor, and also operates the d. c. compressor motor as a generator for charging the battery when pre-cooling. While this necessitates the installation of a 3-phase distribution system in yards and terminals, it is undoubtedly more economical and practical than the use of low voltage d. c. power, where many cars are to be pre-cooled. Also the cost of power is less, although the weight on the car is increased somewhat by the addition of the a. c. motor.

Axle Drives

Obtaining the required power from the car axle for driving the generator (or the compressor in the direct drive mechanical system) probably presents one of the

most difficult problems in railway air-conditioning, except for systems using but a relatively small amount of power.

For generators up to and including 5-kw. rating the flat belt driven from a pulley on a car axle is generally used, although considerable development work is under way to apply V-type belts to this service to obtain longer belt life and more reliable performance in the winter, when it is frequently impossible to keep batteries charged due to slipping belts resulting from moisture, ice and snow on belts and pulleys. This problem, of course, is not as serious in summer when air-conditioning is in use.

Where the power requirements are above 5 kw. and not over 10 kw. two belt-driven generators, driven from separate axles, have frequently been used. While this is undoubtedly a satisfactory temporary solution, it seems reasonable to believe that ultimately the entire power supply will be obtained from one generator, since this should reduce weight, first cost and maintenance.

For the mechanical systems of air-conditioning where the power requirements are greater than can readily be supplied by two conventional belt-driven generators, two general methods of drive are in use. One is based on mounting the generator on the car axle and driving it from a gear on the axle. The other is based on mounting the generator on the car body and driving it from a splined drive shaft connected to a gear on the truck which in turn is driven by belts, either flat or "V" type, or gears from the car axle.

The axle-mounted generator necessitates using a special car axle to carry the generator and gear, which is objectionable from the standpoint of maintenance and spare part supply. Also it necessitates the use of a "safety" gear, which will permit the car axle to continue to rotate when the train is in motion, even though the armature or gears should lock, thus avoiding a slid flat spot which would require setting out the car, and transferring the passengers to another car, which usually results in complaints and ill-will, particularly if it involves a sleeping car at night when passengers have retired. The axle mounted generator is, because of its location, less accessible for inspection and maintenance than the body-mounted type. The maintenance and repair costs, however, should be low because of the entire elimination of belts and the substitution of gears running in oil, protected from dust and dirt. While the use of a special axle is the principal objection to this method of drive, it is nevertheless the feeling on a number of railroads that this disadvantage is outweighed by the advantages, provided this gives a reliable power supply.

Where the generator is body-mounted and driven from the axle through belts to a gear and splined shaft, a standard axle can be used and the belts act as "safety" or shear members to prevent locking the wheels. Although the generator is more accessible for maintenance, the use of belts, gears, splined shaft, etc., will in all probability result in higher overall maintenance charges than a direct gear drive on the axle.

As stated, both types are in use and operating experience is being gained with each type.

In the direct drive mechanical air-conditioning system, the same general arrangement is used as just described. However, the compressor must be run at approximately constant speed. To accomplish this, a magnetic clutch is connected to the drive shaft which operates the compressor at a speed proportional to train speed until rated compressor speed is attained. At train speeds higher than this the clutch slips enough to hold constant speed on the compressor. While this eliminates an electric motor and permits using a smaller battery, it does not

provide for cooling at low car speeds or when standing (except when plugged into a station power supply) unless thermal storage is provided in the air-conditioning equipment. Also the losses in the slipping clutch are appreciable and add to the operating cost.

In connection with the power supply problem mention should also be made of the fact that on a train an unlimited amount of tap water is not available, as is usually the case in stationary commercial refrigeration installations. If water is used for condenser cooling, it must be provided especially for this purpose and, therefore, handicaps an equipment to the extent that both weight and space requirements are increased over an equipment which does not use water.

The number and type of equipments installed up to the present time are approximately as follows:

Ice	266
Steam Jet	44
Direct Drive Mechanical.....	108
Electric Drive Mechanical.....	212
Total	630

The Ice System

The present comparative popularity of the ice system is due to several reasons. The first of these is undoubtedly its lower first cost, which, depending on constructional details and methods of accounting used, varies from approximately \$2000 to \$4500 per car completely installed. The ice system, since it adds only about one kilowatt in electrical load, frequently can be used with existing generators and batteries, although the charging problem then becomes more difficult, particularly on diners where runs are usually short and layovers long with frequent pre-cooling periods. The weight of such equipment completely installed varies from 3300 lb. to 5500 lb. per car, to which must be added the ice load of 1500 to 4500 lb., giving a total weight, including a full charge of ice, of 4800 to 10,000 lb. per car. The ice system is inherently simple in construction, but at that it contains a considerable number of parts requiring inspection, cleaning, adjusting, etc., such as strainers, float valves and pumps. Mechanically the reliability has been good. The space occupied by the bunkers is considerable and where large capacity bunkers must be used this presents serious installation difficulties. In hot weather when cars are iced in the yards and stand for considerable time in the station before departure, a large part of the ice is frequently melted with the result that the ice supply may be exhausted before the other terminal or an intermediate icing station is reached, with the result that the car temperature rises to that of the outside atmosphere. At intermediate icing points it is not always practical to delay the train by the time required to re-ice, with the result that the cars may go out "hot." Under any condition the icing of cars on station platforms is a "messy" job and results in considerable congestion, at least where a number of cars must be iced simultaneously. Where entire trains are to be iced in this manner, the labor problem comes into the foreground, as enough men and trucks must be on hand to load all the bunkers simultaneously, if long train delays are to be avoided. If these men are not otherwise employed at that terminal, the cost of icing becomes very high, as usually they must be paid full time wages even though they work only part time. When entire trains are cooled by ice, the cost of providing icing facilities in the coach yards, and the space limitations in some such yards present serious problems which in some cases make the use of ice impractical even though it would otherwise be considered. In view of the above, one railroad which is a large user of ice cooled equipment used cooling coils

which are designed for ultimate use as evaporators if and when the changeover is made to mechanical refrigeration. In the ice system, the fixed charges are relatively low but the operating charges due to the cost of ice are high where the cooling load is large. Hence, purely from the total operating expense standpoint (including fixed charges) the ice system is best suited to service where the total ice consumption per season is small, due either to light cooling duty or a short cooling season, or a combination of the two.

The Steam Jet System

The steam jet system, as developed for railway cars, has now been in use for two seasons and in general the equipment has proved to be reliable, requiring but little maintenance. Although it has certain inherent limitations from the operating standpoint due to occasional unavoidable low boiler pressure or drop in the train steam line which limits the number of cars in a train which can be cooled, and the fact that station steam facilities must be operated in the summer for pre-cooling, nevertheless it seems reasonable to believe that the steam jet system will continue to be used.

Mechanical Air Conditioning

The mechanical system, including both the direct and the electric drive, is used on more cars than either of the other two systems. This popularity of the mechanical compression system is undoubtedly due, among other things, to a recognition of its flexibility and of the inherent limitations of the ice system as already mentioned. However, it should not be assumed that the mechanical systems have not had troubles of their own. The reasons for most of these troubles, however, if carefully analyzed, can be attributed to the fact that the equipments did not meet the requirements of ruggedness and ease of maintenance peculiar to a railway application. These troubles have been and are being overcome by improved design based on practical experience. Furthermore, a mechanical refrigeration system is something new to the average railroad maintainer, and, as a consequence, equipments have not always received the attention they require. It is reasonable to suppose that with properly trained maintainers and improved design in the equipment, the maintenance costs will be reasonable and the reliability good. Consider, for a moment, the automatic air brake system on a passenger car, with its multiplicity of valves, ports, reservoirs, etc., and the axle lighting system with regulators, reverse current relays, etc., which are kept in operation in all kinds of weather from below zero in the north to semi-tropical weather in the south. This is possible because of proper design and construction, and because of a maintenance organization which is trained in the care of this type of equipment. Certainly the same results can be obtained with mechanical air-conditioning equipment, once the "growing pains" are over.

UNDER A RECENTLY-PROMULGATED GOVERNMENT DECREE, railways of Hungary are granted an exclusive concession for the transportation of freight by highway, provided the right is exercised through a co-operative arrangement with existing trucking agencies. For the purpose of carrying out the provisions of the decree the country is divided into seven districts; and freight passing between points within a district may move by highway, but, if destined beyond the boundaries of the district, it must be routed by rail. In the latter case, trucking agencies will perform the pick-up and delivery services and receive a division of the through rate.

Communications and Books...

Money Paid to Farmers Not a Loss

Dallas, Tex.

TO THE EDITOR:

In your editorial entitled *Private Business and Prosperity*, published in the *Railway Age* of December 16, I note that you intimate or at least create the impression that the money paid to farmers by the federal government is a total loss to the government and an outright gift to agriculture, stating in connection that loans to the railroads must be paid back.

I wish to call your attention to the fact that seed loans have been paid up to 90 per cent of the loans thus far made; that the money paid to farmers for plowing up their crops, or lease money if you wish to so term it, comes back into the public treasury through a processing tax. Far more has been given outright to other industry and to civic works programs than has ever been given to agriculture.

Inasmuch as all business, including the railroads, depends upon agricultural prosperity, it would seem more reasonable for the railroads to give hearty support to the agricultural program than to make untrue comparisons. It is my understanding that seven companies which have borrowed money from the government are not paying installments when due and five of the seven are not even paying the interest. The government will own the railroads a whole lot quicker than it will own the farms of the country if ownership depends upon defaulting.

FRANK A. BRIGGS,
Editor, Farm and Ranch.

Free Railways of Taxes on Right-of-Way and Track

WILMINGTON, DEL.

TO THE EDITOR:

In all of the plans for consolidation of railroads, adjusting the inequalities of control of competing transportation agencies, and bolstering up the railroads purchasing power by federal loans I have not seen the following rather simple suggestion considered.

Let Congress pronounce the real estate and materials (track, ties, signaling equipment, power lines, etc.) used in maintaining of the railroads' private rights-of-way as held by them in trust for the public interest and exempt from all taxation.

This would put the railroads on a somewhat better basis of competition with the highway and water borne traffic using publicly owned and maintained rights of way and relieving the railroads of a very heavy burden of unfair taxes which would be available for financing the purchase of needed supplies, improving services and perhaps lowering rates.

I realize, of course, that there are many entangling complications but I cannot see how they can be any worse than those attending proposed confiscation of property through forced mergers, burdening the already overburdened with additional debt, or any form of public subsidy to compensate for the governmental funds expended to maintain competing forms of transportation. Is it worth considering?

H. L. S.

"House Flags" for Railroads

CHICAGO.

TO THE EDITOR:

In the harbors of New York or San Francisco, or any world harbor, one of the most interesting features observed is the "house flag" of the individual steamship line of this or foreign countries. The design of some of the house flags are not only handsome but arouse curiosity in the mind of the observer as to the meaning of insignia.

Why should not a great railroad system have a "house flag"?

The Union Pacific System, for example: Why not set the Union Pacific standard shield in the center of a blue field and surround the shield with four white stars, properly proportioned

and spaced, and fly this house flag from the general office building and principal station buildings along the line?

The public, especially the traveler, when inquiring of an employee as to what the design means could be informed as to its historical and geographical import: For instance, the standard red, white and blue shield having its origin in the historical background of the building of the railroad during the Civil War period when Abraham Lincoln and his associates desired military and social unification of the Atlantic and Pacific sections of the country.

The white stars, one each to represent the sectional operating jurisdictions of the Union Pacific System: (a) Union Pacific, (b) Oregon Short Line, (c) Los Angeles & Salt Lake, and (d) Oregon, Washington, Railroad & Navigation Company.

The Wabash Railroad flag shown in advertising literature is of handsome design but the Wabash does not actually fly the flag from its buildings. Why could it not be done? The Southern Pacific Lines could fly an appropriate "house flag" with the sunset shield in the center of a blue field, with white stars appropriately spaced, one each to represent the Pacific System, the Morgan (Southern Pacific) Steamship Lines; the Southern Pacific of Mexico; and the Atlantic System (Texas-Louisiana Lines). If inquiry were made of an employee as to the meaning of the design the geographical location of the several general jurisdictions could be stated with an outline of historical and operating import.

The New York Central Lines with the system standard to be set in a blue field surrounded with six stars, each indicative of the major jurisdictions,—the New York Central parent line; the Boston & Albany; the Rutland; the Cleveland, Cincinnati, Chicago & St. Louis; the Pittsburgh & Lake Erie; and the Michigan Central.

I believe the railroad "house flag" would not only arouse favorable comment and inquiry upon the part of the public, but also would contribute to the building of morale among the employees.

The railroad today is in need of an enthusiastic personnel just as the railroad in a progressive sense is much in need of aggressive policies.

EDWIN SWERGAL.

News Vendors and High Fares Scored

GREAT NECK, LONG ISLAND, N. Y.

TO THE EDITOR:

May an uncommercial but faithful customer of the railroads add a mite to the many interesting comments for the benefit of hard-headed officials?

One hears much about increasing speeds, revolutionizing car designs and furnishings, all involving high capital outlays. Of course such things are a gamble and a long one. Passengers do want up-to-date trains but how is a bucket type seat in a modernistic vehicle going to make a journey any more glamorous or comfortable? The seats are already comfortable, but the service is hardly merchandised.

Many roads are cutting down the running time of trains, a much needed improvement in some cases, but not so necessary that "breathing" stops should be eliminated altogether. The trains between New York and Washington, for example, in their futile zeal to compete with planes have cut down so sharply both the Philadelphia and Baltimore stops that a stretch of legs at these stations is no longer possible. Just what good is achieved by this gain of eight minutes would be interesting to know. By the law of alternation the trip is far more pleasant for having been varied by these intermissions on terra firma.

What the passenger would appreciate far more, especially in the coaches, is the elimination of that perennial pest, the magazine hawker. This individual is a very good reason for avoiding railroad trains. Some roads have the effrontery to let him hawk through the Pullmans. Cleaner floors and windows in coaches mean more than bucket type seats which, after all, hardly look "railroadish."

A recent letter by an officer of some ticket agents' conclave

explained well the handicaps in training agents but defended them a little too well for their own good. In all my travels in all parts of this country, never has an agent asked whether I would like a parlor car seat. When I have asked, the reaction has often been that I was being accorded a special privilege for allowing myself to be extorted by a surcharge.

In failing to do anything about fare reductions when for years the demand has been so plain, the eastern executives have done themselves positive harm. One would think they would at least wish to save their faces by cancelling the surcharge when all other roads have, besides, slashed the basic rate. We passengers can now very easily show our contempt for such adamant cussedness and I happen to know that commercial travelers are increasingly doing so.

ROBERT DU B. KEMP.

New Books

Principles of Motor Transportation, by Ford K. Edwards. 377 pages, 9 in. by 5½ in. Illustrated. Bound in cloth. Published by the McGraw-Hill Book Company, Inc., New York. Price \$4.

Because "motor transportation has overnight become a subject of national importance and a topic of wide public interest" the author, who is instructor in transportation at the University of Southern California, attempts in this book to present a picture of the industry in all its phases "for the information not only of those engaged in this field but also of the interested observer and the student." Thus, from a brief introductory statement, the treatise proceeds, through discussions of the development of bus and truck transport and of the organization, traffic, operating and accounting aspects of the industry, to final chapters dealing with rates and tariffs, valuation, regulation and taxation of motor carriers.

Men or Cogs, by Edwin C. Washburn. 298 pages, 7½ by 5 in. Bound in cloth. Published by Washburn, Englewood, N. J. Price \$2.50.

In simple, homespun style, and with much old-fashioned common sense, as assimilated by one "who has been through the mill with his eyes open," Mr. Washburn has written a railroad book which should have a wide appeal. The rank and file of railroaders, whose problems he discusses with rare sympathy and humaneness, will perhaps be among the author's most interested readers, but, in thus placing the emphasis, Mr. Washburn has not neglected to include pertinent observations on problems of policy faced by railway executives. In form the book is a fictionalized autobiography, the author's viewpoint being that of a railroader of the older generation who has had unusual opportunities of becoming the confidant of men in all ranks of railroad work. Interspersed throughout the narrative are short essays on larger problems, such as those arising in connection with competing forms of transport, and sidelight observations on controversial subjects. Mr. Washburn does not hesitate to air the latter, while his comments on the former are calculated to aid and encourage railway employees to make an intelligent and effective defense of their industry whenever it may be subjected to unjust attack.

Transportation Since Time Began, by Labert St. Clair. 349 pages, 8 in. by 5½ in. Illustrated. Bound in cloth. Published by Dodd, Mead & Company, New York. Price \$2.50.

As its title suggests, this book presents the pageant of transportation. In it the author has endeavored to cover every outstanding type of vehicle that the world has seen. His treatise proceeds in a lively style to carry his story of transport from sledges to chariots; from chariots to horseless carriages; and so on to the successive arrivals of the "iron horse," the automobile that would run, and the aircraft. In a final chapter, which considers the future, Mr. St. Clair predicts that transport developments of the next few years "will greatly outdistance the remarkable advances of the last century." He adds, in this connection, that because public welfare will demand it, the major transit lines of the world—land, sea and air—will be merged into gigantic co-ordinated services; increasingly they will be removed "from

the realms of petty politics and narrow management and be administered along broader principles in keeping with their greater importance." The author is director of advertising of the American Transit Association and the book is a unit of the "Stories of Man's Achievements" series, which is being assembled under the editorial supervision of Clarence Stratton.

The New American Government and Its Work, by James T. Young. 1024 pages, 8½ in. by 5¼ in. Bound in cloth. Published by the Macmillan Company, New York. Price \$3.50.

This is the third revised edition of this work by Dr. Young, who is professor of public administration at the Wharton School of Finance and Commerce, University of Pennsylvania. The first edition was published in 1915 and the second in 1923. Since the latter date, the author points out, "our institutions have undergone a strain far more severe and critical than that caused by the Great War," and "profound changes seem imminent." These changed conditions are reflected in part in the present rewritten book, and in addition several new features have been added, including chapters on federal regulation of shipping, aviation, radio and labor. The chapter on regulation of railways remains, having, like others in the book, been brought up-to-date; in this chapter the observation is made that further moves to rehabilitate the railways "must probably take the form of relieving them of some of the unfair competition and burdensome taxation to which they have been subjected."

The book is a unit of the "Social Science Textbooks" series, which series is edited by Richard T. Ely, president of the Institute for Economic Research and research professor of economics in Northwestern University.

The Transportation Crisis, by G. Lloyd Wilson. 335 pages, 8 in. by 5½ in. Bound in cloth. Published by Holston House, Sears Publishing Company, Inc., New York. Price \$2.50.

Because he believes that "if the facts are known and if the importance of the present crisis is appreciated by American business men, bankers, investors, and others, the economic and political action necessary to save the transportation system from ruin will be taken before it is too late," the author, who is professor of commerce and transportation at the University of Pennsylvania, attempts in this book "to consider soberly the facts behind the present condition and to counsel the immediate formulation of a sound policy of use and regulation of all types of transportation utilities." The work is, therefore, in the main, a factual presentation, but in proceeding thus along the detached course charted in the foregoing text, the discussion is never dull because throughout it Dr. Wilson has interspersed his own pertinent observations. Among these are his comments on railway freight service and rate structures. The latter he calls "magnificent, even if they are sometimes but vaguely understood by experts and seldom by users of transportation service"; and he continues in this connection to ask: "Is it not possible that we have become more concerned with building up a comprehensive system of rate structures than in developing rates and practices which will actually move traffic?"

Of railway freight service he observes that "it should be as easy and convenient to make a freight shipment as to mail a letter, send a telegram or cable message, or make a telephone call. The transportation carrier which makes shipment as nearly painless as possible has a tremendously important competitive advantage. . . . The important thing for the shipper is to have a through door-to-door transportation service at through rates under continuous responsibility. For the railroads and steamship carriers the important thing is to continue direct contact with both shippers and consignees from the beginning to the end of the transportation services. . . . This is a buyer's market in transportation, and the seller must market his product in such a way as to attract the elusive buyer."

In his closing chapter, entitled "A Planned Transportation System," Dr. Wilson lists several steps which he believes should be taken to solve the transportation problem—a problem, he adds, which will be solved "not by stressing the claims of various types of carriers but by adjusting the services, charges and practices of each type of carrier to the field in which it is relatively most efficient, under a comprehensive system of governmental regulation designed to conserve the best interests of the carriers and to protect the public interest."

Odds and Ends . . .

Swelling the Conscience Fund

Thanks to the belated working of someone's conscience, the Northern Pacific is \$40 richer than it was a short time ago. With the indicated amount of currency in an envelope addressed "Personal, Treasurer, Northern Pacific Railway Company, St. Paul, Minn.," was a letter which read, "Enclosed find \$40 currency in payment for what may be an obligation to the company for postage, etc., years ago. Not necessary to give name and address."

More Rail-Car History

PHILADELPHIA, PA.

To the Editor:

I have just read with interest the item on the "Odds & Ends" page of your issue of November 18, referring to the new high-speed rail-motor trains as being nothing new, and stating that the first gas-electric car was run February 3, 1906, on the Delaware & Hudson between Schenectady, N. Y., and Saratoga. While this car was no doubt the first gas-electric car built in this country to operate as a gas-electric unit without the use of a storage battery as an auxiliary source of power, it was based on a similar gas-electric car operated on the North Eastern Railway of England a year previous.

Gas-electric cars utilizing a storage battery for the additional power required in starting and on heavy grades were built by the Patton Motor Car Company of Chicago as early as 1897, a gas-electric car of this type making a run on its own power over the Chicago Great Western from Chicago to Cedar Falls, Iowa, on March 20, 1898. Another type of gas-electric car which also utilized a storage battery for additional power was built by the F. M. Hicks Company of Chicago, and was placed in operation on the St. Joseph Valley Railway in April, 1905. Both of these cars preceded the car referred to in this article.

Streamlining may also appear to be a new idea. True it is that wind tunnel tests have shown us many things we did not know, and our knowledge of wind resistance and methods of overcoming this resistance have developed to a high degree in the last few years; nevertheless, a design to reduce wind resistance, which is streamlining, is not new. As early as August 8, 1865, our patent office, in its wisdom, granted a patent, No. 49227, to one C. R. Calthrop, covering a method of streamlining a passenger train, this patent being described as "a method to diminish atmospheric resistance." This design covered a pointed front and a tapered rear end of a train and also a method of closing up the openings between cars and between the locomotive and cars.

All of the McKen cars, some of which were built as early as 1905, had a pointed front end "to reduce wind resistance," and the rear of the body was rounded. Present-day wind tunnel tests have determined that the pointed or tapered end of the car

should be in the rear and the rounded end in front. Had these McKen cars operated principally in reverse, they would have followed very closely the present-day design of streamline cars.

Basically, these new high-speed streamline trains are not a new idea. There is, however, a vast difference between the early gas-electric power equipment and such equipment as is produced today, and while relatively high speeds have at times been attained on a number of railroads, these modern designs of car bodies, trucks and power equipment permit us to do more with less horsepower and at a considerable reduction in operating costs.

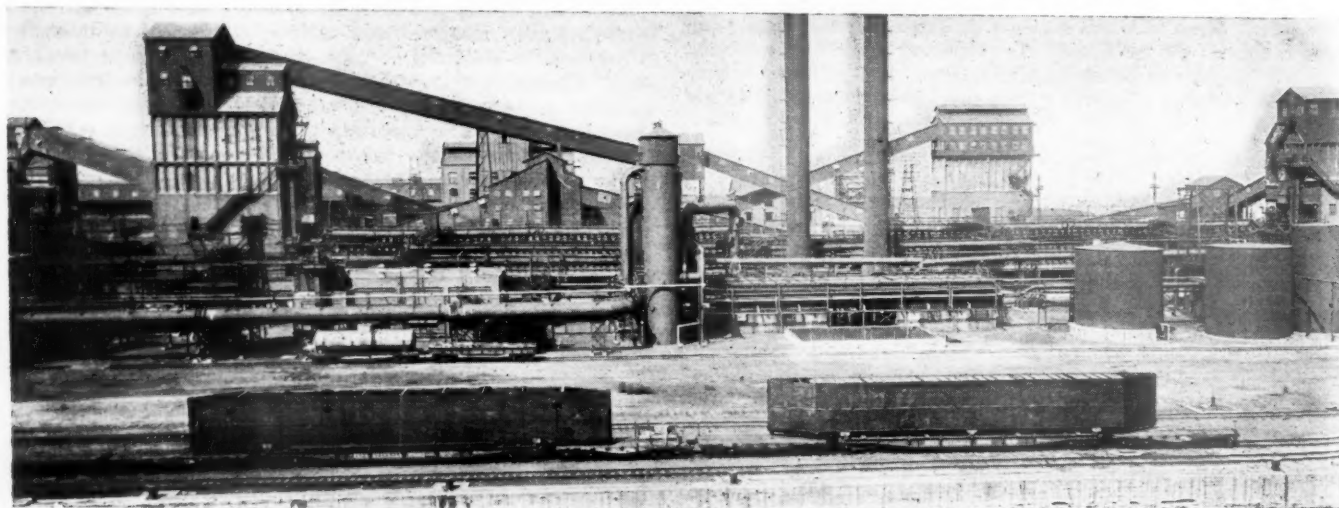
A. W. HOLBROOK,
Assistant to Vice-President in Charge of Sales,
The J. G. Brill Company.

Paddington Station's New Clock

A new "timetable" clock, which is claimed to be the largest moving-figure clock in the world, is now in service in the Paddington station of the Great Western Railway in London, Eng. The clock covers the whole of one end of the roof, spanning Platforms 8 and 9, and can be seen from all the arrival platforms and from most parts of the station. An entirely new departure in railway time pieces, the clock has neither dial nor hands but gives the time in figures in exactly the same way as they appear in the timetable. The figures, which are composed of numbers of brilliant silver reflectors, are 3 ft. in height and are carried on endless belts measuring 37 ft. in length. These belts alone weigh over three quarters of a ton. The change of the numerals at every minute takes eight seconds, this being the time required for the belt to move a sufficient distance to bring the next set of numerals into position. The clock is electrically operated and controlled by a "master" clock.

The Trucks Didn't Get This Business

There was heavy traffic not long ago on the Pennsylvania, when the McClintic-Marshall Corporation sent out three shipments of fabricated steel from its plant at Leetsdale, Pa., to Buffalo, N. Y., for delivery to the United States Lighthouse Service. There were three triple loads, two of which are shown in the accompany illustration. The carrying cars were Pennsylvania container cars 63 ft. 6 in. long, with a capacity of 140,000 lb., and Pennsylvania 30-ft. flat cars of 90,000-lb. capacity. Pennsylvania flat cars of 100,000-lb. capacity were used as idlers. The maximum height from the rail, when the steel was loaded, was 17 ft. 8 in., the width of the load 8 ft. and the length 94 ft. 5 3/4 in. The three loads weighed, respectively, 109,036 lb., 95,747 lb. and 109,036 lb. On account of their extreme height and the area of the exposed surface, the cars were moved during daylight only at a speed not exceeding 20 miles per hour. On arrival at Buffalo, the steel was assembled into a barge, 93 ft. by 37 ft. 6 in. by 7 ft. 6 in., which was launched in Lake Erie.



Two of the Three Triple Loads of Fabricated Steel, Ready to Go

NEWS

Eastman Proposes Agency for Perishable Shipments

Co-ordinator would enforce standard specifications for containers and loading rules

Joseph B. Eastman, federal co-ordinator of transportation, has submitted a proposal to the regional co-ordinating committees calling attention to excessive damage claims paid on fresh fruit and vegetable shipments and proposing an agency to enforce standard specifications for containers and loading rules. In his letter of transmittal, Mr. Eastman said, "It appears that a very large part of the claims paid on this traffic are the result of the use of fragile and unsuitable crates and containers. It is the duty and legal right of the carriers to require packaging of such character as to insure the safe arrival at destination of fresh fruits and vegetables under reasonable methods and conditions. It also appears that the existing carrier practices in this respect are inadequate, as evidenced by the condition of packages on arrival at destination. The payment of claims for damaged lading, where the damage is primarily the result of weak, fragile and unsuitable packages, constitutes a preventable waste of carrier funds. It further appears that this condition is the outgrowth of a highly competitive situation, wherein no single carrier, without facing the penalty of a freight diversion, can do much towards promoting or encouraging better fruit and vegetable package standards. This is a matter upon which joint action by the regional co-ordinating committees would appear desirable."

While there may be several solutions to the problem, one proposal is here given: (1) Set up an agency or expand or extend the scope of an existing agency which will have the ability and be given the authority to prescribe and the power to enforce standard specifications for containers and loading rules for fresh fruits and vegetables. It must be so organized as to command the respect of the shipper, container manufacturer, carrier and receiver; (2) the duties of this organization will be to study, test and prepare specifications for all containers for fresh fruits and vegetables, for height of bulge pack and for methods of stowing, stripping and bracing and to publish these specifications and rules in an appropriate uniform tariff covering all territories and to properly police them; (3) the agency should be independent and free from pressure by individual carriers or groups of carriers, shippers, receivers or container manufacturers. Provision should be made to hold

hearings but the decision of the agency should be final and subject only to review by the Interstate Commerce Commission.

More Fare Reductions In South

The Interstate Commerce Commission has authorized the Atlantic Coast Line, the Louisville & Nashville, and the Nashville, Chattanooga & St. Louis to put into effect on short notice tariffs establishing coach fares on the basis of one and one-half cents a mile, to meet the rates put into effect on December 1 by the Southern and the Seaboard Air Line.

Lee Heads I. C. C. for 1934

Commissioner William E. Lee has been elected chairman of the Interstate Commerce Commission for ensuing year, succeeding Patrick J. Farrell.

Rock Island Decides on Century of Progress Exhibit Next Year

The Chicago, Rock Island & Pacific will again exhibit in the Travel and Transport building at A Century of Progress Exposition in 1934 and will occupy the same location as in 1933.

Central Western Shippers' Board

Commodity committees reporting to the Central Western Shippers' Advisory Board at Pocatello, Idaho, on December 14, estimated a net average increase of 3.5 per cent in carload shipments in the states of Colorado, Idaho, Nebraska, Utah and Wyoming during the first quarter of 1934, as compared with the same period a year ago. Actual carload shipments of 29 major commodities moved during January, February and March, 1933, aggregated 241,018, while the committees reporting estimated a volume of 249,635 carloads will be moved during the same period in 1934. Decreases were expected in shipments of flour, meal and other mill products; hay, straw and alfalfa; livestock; lumber and forest products; plaster and canned goods. Increases were forecast in shipments of fresh vegetables; agricultural implements; automobiles, trucks and parts; fertilizers; dried beans and peas.

Unusual interest was shown in that part of the program dealing with the co-ordination of transportation. J. E. Hutchinson, spoke on What the Federal Co-ordinator of Transportation Has Done and Proposes to Do. Other subjects discussed were The Highway Transportation Code; The Need for Regulation of all Competing Forms of Transportation; and The Relation of Industry to Transportation. The next meeting of the board will be held at Troutdale-in-the-Pines, Evergreen, Colo., in June, 1934.

Federal Aid Considered in Railway Refinancing

Administration surveys situation to determine what assistance may be required

Among other problems the Administration is giving some consideration to the extent to which the federal government may be called upon to aid in the refinancing of railway maturities in 1934 and President Roosevelt was expected to discuss the subject with Chairman Jones of the Reconstruction Finance Corporation some time during the week. A remark by Chairman Jones at a press conference that the government would have to help the railroads to a small extent, through the R.F.C. or in some other way, was magnified in some papers to a story that the government was planning a program of railroad financing to the extent of some two billion dollars. Just where the two billion figure came from was somewhat obscure but it was printed as an estimate of the railroad maturities for 1934, which actually amount to about \$300,000,000 of funded debt and about \$100,000,000 of equipment trust certificates. Mr. Jones said that the banks would have to carry a large part of the amount and it is understood that the R.F.C. had tentatively planned on about \$100,000,000 as the amount for which it might be called upon. Two or three roads have already made application for loans to meet 50 per cent of maturing issues and the New York Central has discussed with the R.F.C. plans for meeting a \$48,000,000 issue which matures on May 1. In addition to the fixed maturities the railroads according to the latest compilation had some \$338,000,000 of loans and bills payable on September 30.

North Western Promoting Winter Sports Travel

In an effort to create travel during the winter, the Chicago & North Western is popularizing winter sports along its lines through the operation of all-expense tours. The territory selected is the North Woods of Wisconsin which is popular because of fishing during the summer months. Under the plan, parties will leave Chicago every Friday night between December 29 and February 23, inclusive, the train being known as the "Winter Sports Special," and arrive in Eagle River, Wis., the following morning. Arrangements have been made with Jack-O-Lantern Lodge near Eagle River for accommodations. The entire trip costs \$20, including rail fare, lower berth both ways, nine meals and two nights' lodging. A seven-piece band will furnish dance music in the lodge.

Board of Trustees Named for Canadian National

Fullerton of Railway Commission is chairman—Foe of political control of management

Six months after the passage by the Canadian Parliament of legislation providing for its creation, the board of trustees of the Canadian National to take the place of the present board of directors was appointed last week at Ottawa, as follows: Hon. Charles Percy Fullerton, at present head of the Board of Railway Commissioners of Canada (corresponding to the Interstate Commerce Commission), chairman; and J. Edouard Labelle, of Montreal, and Frederick K. Morrow, of Toronto, at present members of the board of directors, to be the other two members of the new board of trustees. It is expected they will assume their new duties with the commencement of the new year. While no salary for the chairman has been fixed, it is believed it will be at least \$25,000 a year. Mr. Morrow, a Toronto financier, has refused to accept a salary, but Mr. Labelle will probably be given \$10,000 a year, although the positions of the two members of the board other than the chairman are not considered full-time jobs.

Leaders of the Conservative party have often been critical of the powers exercised by the late Sir Henry Thornton when he was president of the Canadian National, but the powers conferred upon the chairman of the board of trustees by the present Conservative government, through the legislation enacted by Parliament, are even more sweeping. It will be recalled that the Royal Commission, headed by Justice Lyman Duff, of the Supreme Court of Canada, and of which some of the other members were L. F. Loree, president of the Delaware & Hudson, and Lord Ashfield, of Great Britain, found that one of the great handicaps of the publicly-owned road was political interference, and the Commission strongly recommended that in any reorganization of the road it should be provided that such interference would be as difficult as possible. Judge Fullerton, though a Conservative in politics, is known to be determined to resist to the limit any attempt at politics in the road's administration. He is known to have some strong views, too, on the question of highway competition with the steam railways, but provincial rights are still an obstacle and he will be obliged to walk warily on this question.

Justice Fullerton is looked upon as representative of practically all sections of Canada. He was born in Amherst, N. S., July 15, 1870, and was educated at Dalhousie University, Halifax. He practiced law in Sydney, N. S., where he served as mayor. Going to Winnipeg in 1906, Mr. Fullerton practiced with the firm headed by Sir James Aikens.

In 1917 Mr. Fullerton became Justice Fullerton on his appointment to the Manitoba Appeal Court. Later he was made Chief Justice of the Province, and in 1931 he went to Ottawa as chairman of the Board of Railway Commissioners.

Frederick Keenan Morrow is one of the leading business men of the Dominion. Born in Simcoe county, Ontario, 47 years ago, he is director of numerous companies in Canada and the United States, including bakeries, flour mills, tobacco, industrial works, express, telegraph and transportation. He was educated in Toronto and resides there.

J. Edouard Labelle was born at Sorel, Que., 47 years ago and is a graduate of Montreal College and Laval University. He has specialized in commercial law and for the past 15 years has been legal adviser to the huge estate of the St. Sulpice Seminary. He also is a director of numerous corporations.

Heavy Rains Disrupt Train Service in Pacific Northwest

During six successive days of unusually heavy rains in the week immediately preceding Christmas, resulting in swollen streams and rivers and numerous landslides, railroads in the Pacific Northwest experienced many delays to train service because of washouts and flooded tracks. Service for a time was entirely disorganized, with important trains stalled in isolated regions for from a few hours to a matter of days. Railroads traversing the states of Washington, Oregon, Montana and Idaho were those most affected.

The eastbound Olympian of the Chicago, Milwaukee, St. Paul & Pacific became stranded near St. Regis, Mont., on Friday, December 22, with about 125 passengers aboard. Most of the passengers were forced to remain aboard the train for more than a day, until the water receded. Food and supplies were rushed to the train, however, and the passengers were made as comfortable as possible. They were finally removed from the train and taken to Missoula, Mont., where they resumed their journey on a westbound train which, stopped by the floods, was turned around.

First Railmobile in Service on Escanaba & Lake Superior

Following a one-day exhibition in the Milwaukee station at Milwaukee, Wis., at which it was viewed by several thousand people, the first Railmobile, produced by Fairbanks, Morse & Co., in conjunction with the Goodyear Tire & Rubber Company and the Chrysler Corporation, was operated under its own power to Wells, Mich., where it was placed in regular service between Wells, Escanaba and Channing on the main line of the Escanaba & Lake Superior, its purchaser.

This Railmobile was built to the specifications of the railway and differs in some respects from the equipment described in the *Railway Age* of December 16, page 847. For the present, it consists only of the passenger- and mail-carrying motor car, without the trailer. To reduce overall height, the car has 6 in. less headroom than the standard car. To facilitate backing, a special transmission is employed which permits speeds in reverse as high as 40 miles per hour. Windows are inserted at the rear of the coach and in the panel separating the passenger compartment from the mail and baggage compartment, so that the view of the operator, while backing, is not obscured.

Warehousing and Storage Practices Are Condemned

I. C. C. makes public its report on Part VI of its general Ex Parte 104 investigation

Warehousing and storage practices of the railroads serving the port of New York, the charges assessed and allowances made in connection with them, were severely criticized in a report made public by the Interstate Commerce Commission on December 27 on Part VI of its general investigation of practices of carriers affecting operating revenues or expenses, Ex Parte No. 104. This part of the investigation was undertaken largely in response to complaints filed by various associations of warehousemen. The report finds that the practices dissipate the funds and revenues of the railroads, are not in conformity with efficient and economical management as contemplated by the interstate commerce act, and not in the public interest. Certain of the practices are found to result in violations of the interstate commerce act and to afford reasonable ground for the belief that the Elkins act is violated. The respondents are admonished to take prompt corrective action but the commission says that the evidence clearly shows that the carriers themselves are fully aware of the situation and, for the present, a motion to extend the investigation to cover other ports and terminals has been denied. All carriers subject to the act, however, are admonished that their practices and charges should be adjusted in conformity with the principles announced in the report and failure to do so will be deemed sufficient reason for the institution of further investigations. The general complaint made by the warehouse interests was that warehouses owned or controlled by the carriers were being operated in a manner which precluded the commercial warehouses from obtaining much, if any, of the business. In its summary of conclusions the commission says in part:

"We have been unable to find any provision of the statutes conferring jurisdiction upon us to require a railroad to cease engaging in a business or activity not within its duty as a common carrier of interstate or foreign commerce. This view, however, is confined to the bare question of authority to deal with activities, as such, which are not within and do not affect the railroad's duty as a common carrier. A different situation is presented where the performance of such services is so related to the performance of common-carrier duties and of such character as to create a violation of the act, because it is established that in such circumstances the Commission is vested with ample authority.

"Much of the warehousing or storage service under consideration here and the handling necessary in connection therewith is not storage incidental to transportation but is commercial storage.

"Each of the seven trunk line respondents provide transit rules and rates for the storage of westbound freight at their warehouses in the Port of New York District,

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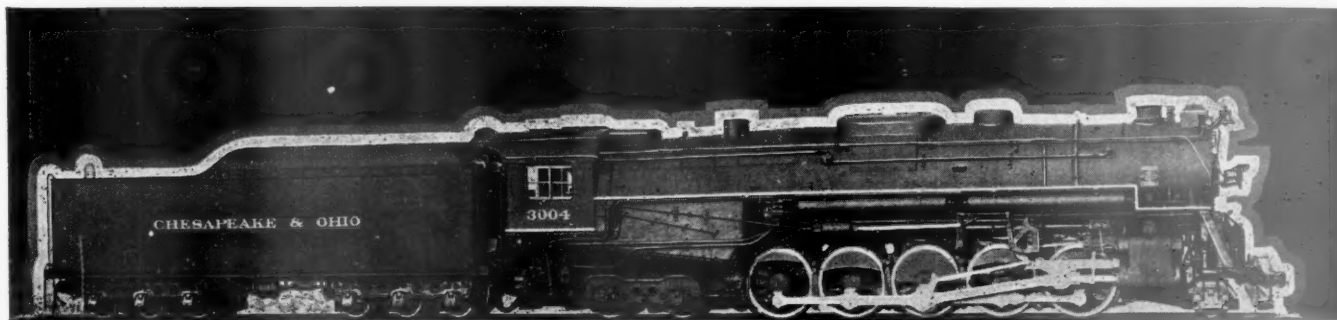


TWO-CYLINDER SUPER-POWER LOCOMOTIVES REPLACE MALLET'S

The 2-10-4 type locomotives built for the Chesapeake and Ohio Railway by Lima are the world's most powerful two cylinder engines. They are being used in hauling heavy coal and ore trains and are replacing Mallets in this service, with the following results:

INCREASED TRAIN LOAD
INCREASED SPEED OF OPERATION
DECREASED FUEL CONSUMPTION
DECREASED MAINTENANCE

The most striking result is the decrease in maintenance. One set of cylinders, drivers, rods, etc., now does the work of two sets on the Mallets.



but these rules and rates vary greatly from the generally accepted storage-in-transit practices.

"The motive of the carriers in engaging in the commercial business is to induce shippers to use their rail facilities, and thereby increase the volume of traffic over their respective lines. The lower the aggregate charges for transportation and storage or warehousing services the greater the inducement. The rail carriers directly or through dominated and controlled subsidiaries seek out the larger shippers and offer them lower rates for warehousing services and warehouse space than the private warehousemen. It appears of little concern to the railroads that the charges for the warehousing services and space furnished are not compensatory, because they expect to recoup any losses through the revenue derived from rail transportation.

"The conflict of interests is not confined to rail carriers and private warehousemen, but concerns also the rail carriers as between themselves. The record plainly shows the struggle between the different rail carriers for supremacy in the matter of inducements without due regard for expenditures and profitability of the business. The conflict of interest applies also as between larger shippers controlling sufficient traffic to enable them to use the carrier-controlled warehousing facilities at non-compensatory rates and smaller shippers who must pay the tariff rates for rail transportation and of necessity use the private warehousing facilities at higher rates than are charged by the carrier-controlled warehouses. It should be borne in mind that certain carrier-controlled warehousing facilities are not available to the general public but only to selected concerns controlling large volumes of traffic. The tariffs provide that arrangements for storage space for westbound shipments in or on railroad piers or warehouses must be made in advance with respondents, or with outside warehouses if stored therein.

"In addition to furnishing warehousing services the rail carriers, or their subsidiaries, also rent space in stations, piers or warehouse buildings to certain shippers for various purposes, and the rental exacted is not only below the prevailing rates but is non-compensatory.

"Although the carriers charge all shippers alike the tariff rates for rail transportation, it is obvious that the according of non-compensatory warehousing charges and rental to some shippers and not to all is equivalent to a deduction from the charges for transportation to some shippers and not to others for like and contemporaneous service.

"Apart from the requirements of the statutes previously discussed, the competitive waste involved in the practices dealt with herein is deserving of most careful consideration.

"The matters and transactions referred to in this report are further illustrations of serious waste resulting from the competition of railroads with each other for traffic. By referring to Appendix I it will be noted that seven of the carriers have expended over \$36,000,000 in connection with the warehouse projects considered herein, and Appendix II shows the

loss incurred thereon during 1931 was over \$1,260,441. Appendix III shows the loss per ton of freight stored in-transit ranges from \$1.28 to \$6.18. These losses are added to by losses incurred on freight stored on railroad piers, and in cars, on insurance premiums, and from loans and advances. The private warehouse interests estimate the total annual losses to be \$3,152,119.63. It seems unnecessary to dwell at length upon the development and results of the situation here presented. The evidence clearly shows that the carriers themselves are fully aware of the situation. Whether or not initial advantages may have been realized at one time or another, by individual carriers, the result is that a preferred group of large shippers are now the sole beneficiaries, and are so at the expense of the carriers and the general shipping public."

Oregon Motor Carrier Law Upheld

The constitutionality of Oregon's recently-enacted Motor Transportation Act, providing for the regulation of highway carriers, was upheld by the Supreme Court of that state in a recent decision in the case of *Anderson vs. Thomas*. The case, which was a petition for an injunction to restrain the Oregon commissioner of public utilities from enforcing the law, reached the Supreme Court on appeal from a decision of the Circuit Court for Marion county, which had held certain sections of the act unconstitutional while upholding remaining provisions.

Missouri Pacific Employees to Conduct Their Own Relief

Missouri Pacific employees again this winter will provide relief for their unemployed fellow workers. Cards authorizing deductions of one-half of one per cent of the signers' monthly earnings during the five-month period from December, 1933 to April, 1934, inclusive, are being distributed. Last year, 91,778 was made available through payroll deductions and cash distributions for relief of employees temporarily out of work. Of this amount, \$60,861 was raised on the Missouri Pacific proper and \$30,917 on the Texas and Louisiana lines. The funds were disbursed by committees of employees.

British Roads to Open Joint Traffic Office in New York

Three British railways—the London, Midland & Scottish, the London & North Eastern and the Southern—have organized a joint traffic agency, to be known as the Associated British Railways, Inc., for the conduct of their traffic-promotion activities in the United States and Canada. The new joint agency, which will open on January 1 with headquarters at 551 Fifth avenue, New York, will supplant present New York traffic agencies of the participating roads; it will be in charge of T. R. Dester, former vice-president of the London, Midland & Scottish Corporation, whose new title will be general traffic manager for the United States and Canada.

While the principal object of the agency will be to create and foster travel by rail in Great Britain, the announcement states that arrangements have been made with

steamship lines and others whereby all-expense tours will be sold, covering steamship fares to Europe, rail, highway and air transportation, hotel accommodations and sight-seeing trips for travel in Great Britain and on the continent. With the opening of the new agency the present London & North Eastern traffic office at 11 West Forty-second street, New York, will be closed.

Air-Express Traffic Increases

Air-express traffic handled by the Railway Express Agency increased by more than 123 per cent in November as compared with November, 1932, according to a recent statement by J. H. Butler, general manager of the Agency's Public Relations department. Among the traffic gains reported was an increase as compared with the previous year, of 140 per cent in the number of shipments at New York and almost 900 per cent at Denver, Colo.

Repeal of prohibition, enabling shipments of liquor and distillers' materials, together with holiday buying calling for rush shipment, the statements says, have had a marked influence on air-express business during the early part of December, indicating that this month will see not only increased air-express shipments but also a rise in traffic moving over co-ordinated air-rail routes.

Washington Excise Injunction Dismissed

A temporary injunction granted the Northern Pacific, the Great Northern, the Chicago, Milwaukee, St. Paul & Pacific, the Oregon-Washington Railroad & Navigation Company and the Spokane, Coeur D'Alene & Palouse to prevent the enforcement of the Washington excise law levying a tax of 1½ per cent on the gross income of all common carrier railroads and all business, both passenger and freight, handled in Washington, both interstate and intrastate, has been dismissed by a court of three federal judges at Tacoma, Wash. The court ruled against the railroads' contention that the law passed at the last session of the legislature and to become effective on August 1 is necessarily unconstitutional on the ground that it interferes with interstate commerce. Although the injunction was denied, the court did not quash the suit attacking the constitutionality of the law.

Part-Time Crossing Protection in Connecticut

The Connecticut Public Utilities Commission has authorized the New York, New Haven & Hartford to substitute automatic flashing light signals for watchmen at three highway crossings in the town of Plainfield, and in its order has introduced a paragraph requiring watchmen at the crossings during certain hours, to protect school children. One of the crossings has had a flagman in attendance during the day (14½ hours), and another has had gates, operated 24 hours a day. After a hearing, and listening to objections, and taking count of the volume of traffic on the crossings, the petition of the railroad company has been granted, the signals at one crossing to be completed by March 1, and the



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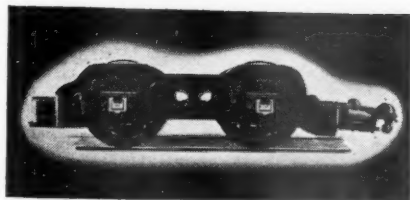
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By applying Boosters to existing engines, you can get the needed power more quickly and more cheaply than in any other way. They add to the capacity of what already exists and thus keep efficiency at a high point.

Start a Booster Program Now!



FRANKLIN RAILWAY SUPPLY COMPANY, INC.

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others by July 1. At Railroad Street crossing, a watchman must be in attendance on all school days, during the hours when children are using the crossing, going to or from school. At School Street crossing, a similar requirement is imposed, while at Main Street (Crossing No. 31.13), the watchman is not required, as the pupils crossing at this place are of high school age, and, moreover, most of them are carried to and from school in buses.

W. & L. E. Storedoor Tariff Suspended

The Interstate Commerce Commission on December 28 suspended the I.C.C. storedoor collection and delivery tariff of the Wheeling & Lake Erie on the ground that it proposed a rate different from other roads.

Club Meetings

The Indianapolis (Ind.) Car Inspection Association will hold its next meeting at the Severin Hotel, Indianapolis, on Friday evening, January 5, (the regular meeting date falling on a holiday). The discussion will be on changes in the interchange rules.

The Car Foremen's Association of Chicago will hold its next meeting on Monday evening, January 8, at the La Salle Hotel, Chicago. The discussion will be on the new A. R. A. rules of interchange.

The New England Railroad Club will hold its next meeting on Tuesday evening, January 9, at the Copley-Plaza Hotel, Boston. J. Roberts, chief of motor power and car equipment of the Canadian National, will present a paper on locomotive repair shops in relation to modern locomotives.

The Railway Men's Club of Peoria and Pekin will hold its next meeting on Friday evening, January 19, at the Union Station in Peoria (Ill.). The discussion will be on the changes in the interchange rules.

Electric Welding Standards

The first national standards in the field of electric welding have been approved by the American Standards Association. These standards, covering the electrical apparatus for arc and resistance welding, are intended to assure an adequate and properly-controlled supply of electric current to meet the requirements of welding service. Generators, transformers, and other equipment are covered by the standards, which are designed to eliminate faults traceable to electrical supply.

The Sectional Committee on Electric Welding Apparatus, which developed the standards, was organized in 1931 under the joint sponsorship of the American Institute of Electrical Engineers and the National Electrical Manufacturers Association. The committee consists of representatives of five producers, six consumers, and eight general interests, the final personnel being made up after a canvass of all organizations known to have any substantial interest in the subject.

Unions Prepare Legislative Program

A legislative program, which will be presented to Congress, was adopted by the Railway Labor Executives' Association at

a meeting in Chicago on December 20-22. The program adopted provides for a six-hour working day with present weekly and monthly basic pay schedules; a train-limit law restricting freight trains to 70 cars and passenger trains to 14; a full crew law for freight, passenger and yard service; an amendment to the federal hours-of-service law which will limit hours of train and enginemen to 12 out of 24, as compared with the present 16-hr. limit and a 9-hr. limit where orders are taken by telephone and wherein dispatchers' hours will be limited to six as compared with nine and the telegraphers' hour limit will be unchanged; amendments to the existing law with a view to enforcing the "status quo" and to provide that no changes may be made in wages or working hours when a conflict between employer and employee arises, pending settlement of the dispute by arbitration.

At the annual banquet of the association on December 21, Secretary of Labor Frances Perkins was the principal speaker. She advocated a 10-point program to improve the conditions of labor, including a permanent limitation of hours of labor, the prohibition of child labor, minimum wages, the betterment of working conditions, provision for aged workers, unemployment reserves, adequate workmen's compensation laws, free public employment exchanges, improved administration of labor laws and steps to insure the permanence of improved labor conditions.

Disastrous Collision at Lagny, France

In a rear collision of passenger trains, on the Eastern Railroad of France, at Lagny, 15 miles east of Paris, on the evening of December 23, at about 8 o'clock, approximately 200 persons were killed, and more than 200 injured. The news dispatches of successive days each increased the number of fatalities.

The collision occurred in a dense fog, a fast train, destined for Strasbourg, running into a preceding local train which had stopped at a station. The four rear cars of the standing train were completely wrecked, being of wooden construction. The cars in the Paris-Strasbourg train are spoken of as steel, and few serious injuries occurred in that train.

Press reports contain numerous comments, and some discussion, on the cause of the collision, but are too confused and contradictory to warrant any conclusion at this time. The engineman, Lucien Daudigny, and the fireman, Henry Charpentier, of the Express, were imprisoned, but a member of the legislature protested in the newspapers that their arrest had been arbitrary and unreasonable. Both engineman and fireman persisted in averring that the signals had been clear for them, but "officials" of the road are quoted as saying that the train passed, at 65 miles an hour, signals set against it. Dispatches on the third day seemed to indicate that the locomotive was fitted with a cab signal.

The Eastern Railroad has in use landmarks—striped posts—set up at the side of the road for the benefit of enginemen running in fog, giving notice of approach

to a caution signal. One of these landmarks is illustrated in an article published in the *Railway Age*, September 7, 1929, page 596. The Eastern at that time had 1100 installations of these posts. The aspect, approaching such a post, is that of a vertical board bearing diagonal black and white stripes, somewhat like those used in America to make obscure walls or structures more easily visible to high-speed motorists. The Eastern, in 1929, had 3150 locomotives equipped with cab signals, and there were 4300 "crocodiles" at which cab signals were actuated.

The Lagny collision, measured by the fatal and non-fatal injuries, is the worst in the history of France, and one of the few railroad train wrecks in world history where the number of persons killed was as great as 200. The collision at Quintins-hill, near Greta Green, Scotland, in which a train carrying soldiers ran into a standing train, and in connection with which the fatalities are now said to have totaled 227, occurred on May 22, 1915.

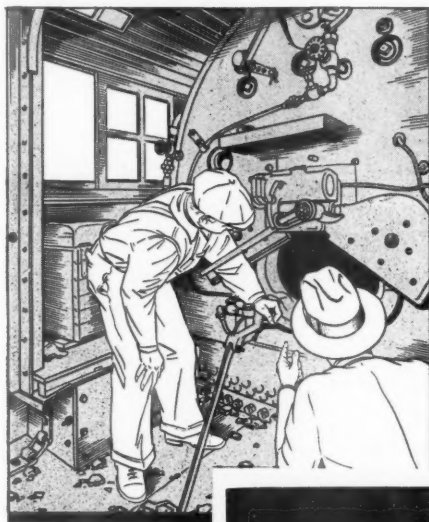
Salt Rate Structure Revised

A general revision of freight rates on common salt throughout the United States, based on percentage relations to the first class rates, has been prescribed by the Interstate Commerce Commission as a result of its general investigation, Part 13 of the general rate structure investigation, with a view to determining whether that commodity is sustaining its lawful share of the general transportation burden, the lawful level of the rates in relation to those on other commodities, and the lawful relation of the rates from the various producing fields. The report says that while the effect of the prescribed rates on the railroads' revenues can be only estimated, certain computations have been made, based on the movement during a test period, which indicate that they will increase the revenues of the carriers as a whole approximately \$1,000,000 annually. Unquestionably, however, the report adds, this figure will be reduced to a considerable extent because of the fact that some of the salt that now moves in large packages could move in bulk and undoubtedly will under the dual basis of rates prescribed. Moreover the opinion is expressed that there will be some diversion of tonnage and various competitive influences will make it impossible in all cases to charge the maximum basis of rates prescribed. The increases will be mainly confined to traffic within and to official territory, the Southwest, and Zone I of western trunk line territory. The maximum rates prescribed between points in official territory are 17.5 per cent of the present first-class rates on bulk salt, and 22.5 per cent of the first-class rates on package salt and mixed carloads of bulk and package salt; between points in southern territory and from points in official territory to southern territory, 16 per cent on bulk salt and 20 per cent on package salt; in southwestern territory, 16 per cent on bulk salt and 20 per cent on package salt; between points in western trunk line territory, 17.5 per cent on bulk salt and 22.5 per cent on package salt.

Continued on next left-hand page

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Equipment and Supplies

\$27,530,000 Allotted in P.W.A. Rail Loans

Allotments totaling \$27,530,000 among six railroads that will create 18,400,000 man-hours of direct employment were announced on Thursday by the Public Works Administration and it was stated that the contract for the Pennsylvania's \$84,000,000 loan would probably be signed on Friday. This brings the total allotments for railroad loans to \$210,342,000.

The Southern Pacific was allotted \$12,000,000 for the purchase of 40,000 tons of rails and fastenings and 1,820,000 cross-ties, for repairing bridges and culverts and for reconditioning locomotives and cars.

The Illinois Central was allotted \$9,300,000 for the purchase of rail, for the repair of bridges and for reconditioning of equipment, including \$6,526,000 for repairs to freight cars and \$1,000,000 for passenger car repairs.

The Baltimore & Ohio was allotted \$4,030,000 for the purchase of 35,000 tons of rails and 820 coal cars and for repairs to 5,000 freight cars and 240 locomotives.

The receivers of the Wabash were allotted \$1,489,000 for the purchase of 10,000 tons of rail and 3,000 tons of fastenings and for repairs to 1,500 cars.

The Kansas, Oklahoma & Gulf was allotted \$265,000 for the purchase of about 5,200 tons of rail and necessary fastenings.

The Interstate Railroad was allotted \$250,000 for rebuilding 500 coal cars.

The Interstate Commerce Commission, Division 4, has issued reports approving, "as desirable for the improvement of transportation facilities," proposed expenditures, with the proceeds of P.W.A. loans, for the purchase of rails and fastenings by three railroads, of \$3,500,000 by the Chicago & North Western, \$251,300 by the Chicago & Eastern Illinois, and \$47,000 by the Pittsburgh & West Virginia. It had previously approved the proposed expenditure by the Chicago, Milwaukee, St. Paul & Pacific of \$1,818,750 for rails and the Kansas, Oklahoma & Gulf has filed an application for commission approval of a proposed loan of \$265,000 for the purchase of 5,200 of 110-pound rails together with fastenings.

The C. & N. W. proposes to purchase 65,000 tons of rails and 18,000 tons of accessories and fastenings, the C. & E. I., 4,000 tons of rails and fastenings, and the P. & W. V. 1,000 tons of rails and fastenings.

The New York, New Haven & Hartford has applied to the commission for approval of an expenditure of \$1,350,000 for 25,000 tons of rails and 10,000 tons of fastenings to be purchased with a loan from the P.W.A.

The Boston & Maine has applied to the commission for approval in connection with \$1,100,000 of its allotment of \$4,500,000 from the P.W.A., to be used in repairing locomotives, cars, and buildings to provide additional winter employment for shop employees. The application said that "none

of this work would be undertaken at this time were it not that the applicant desires to fulfil the spirit of the national industrial recovery act and furnish employment to as many man-hours as possible and were it not for the fact that the provisions of the national industrial recovery act provide a means for the borrowing of money for this purpose."

FREIGHT CARS

THE AMERICAN TANK LINE has accepted delivery of 10 tank cars of 40 tons' capacity. These cars were ordered from the American Car & Foundry Company.

THE PENNSYLVANIA SALT MANUFACTURING COMPANY has ordered two tank cars of 40 tons' capacity from the American Car & Foundry Company.

PASSENGER CARS

THE CHILEAN STATE RAILWAYS are inquiring for 20 first-class passenger coaches.

THE NORFOLK & WESTERN is inquiring for 10 coaches and 8 combination passenger and baggage cars.

IRON AND STEEL

THE LEHIGH & HUDSON RIVER is inquiring for 1,000 tons of rail.

Financial

ALABAMA GREAT SOUTHERN.—*Bonds.*—The Interstate Commerce Commission has authorized this company to procure the authentication and delivery of \$500,000 of first consolidated mortgage 5 per cent bonds, series A, in partial reimbursement for capital expenditures.

ATCHISON, TOPEKA & SANTA FE.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a branch line extending from Bragg, Tex., to Saratoga, 9.2 miles.

CHICAGO & ILLINOIS WESTERN.—*Equipment Trust Certificates.*—The Interstate Commerce Commission has authorized this company to assume liability for equipment trust certificates totaling \$350,000 under an amended agreement whereby holders of the certificates, originally issued in 1929, consent to a modification of the terms of payment.

CHICAGO GREAT WESTERN.—*New Director.*—Richard J. Collins, Chicago, has been elected a director of this company to succeed E. F. Swinney, resigned.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon 25.5 miles of line extending westerly from Midland Junction, Minn., to a point near Zumbro Falls.

LOUISIANA & ARKANSAS.—*Note.*—The Interstate Commerce Commission has au-

thorized this company to renew or extend to not later than December 31, 1935, the maturity date of a secured promissory note for \$1,600,000 which matures on December 31, 1933, and to pledge as collateral security therefore \$2,766,000 of its first mortgage, series A 5 per cent bonds.

NEW YORK CENTRAL.—*Notes.*—The Interstate Commerce Commission has authorized this company to issue and reissue from time to time \$75,000,000 of promissory notes and to pledge as collateral therefor not exceeding \$175,000,000 of its refunding and improvement, series C, mortgage bonds.

PIONEER & FAYETTE.—*R.F.C. Loan.*—This company has applied to the Reconstruction Finance Corporation for a loan of \$10,000 for the purchase of a short line of railroad.

ST. LOUIS-SAN FRANCISCO.—*Reorganization Plan Abandoned.*—The readjustment managers under the plan for the reorganization of this company in receivership, dated July 6, 1932, have announced that "because of changed conditions since the promulgation of the plan, further efforts to carry out the plan would be futile and not in the interest of the bondholders." The security holders who deposited their holdings under the plan are urged to authorize the committee acting for each class of security to act for them in further negotiations and all bondholders who have deposited their holdings under the plan and who do not withdraw them by January 27 will be deemed to have given consent to this arrangement. Considerable opposition had developed among powerful groups of bondholders to the proposed plan of reorganization. The chairmen of the committees for the several classes of securities are as follows: Consolidated mortgage bonds, F. H. Ecker, president Metropolitan Life Insurance Company; refunding mortgage bonds (K. C. F. S. & M.), James H. Brewster, Jr., Aetna Life Insurance Company; prior lien bonds, J. W. Stedman, vice-president, Prudential Insurance Company; preferred stock, Mortimer N. Buckner; common stock, Charles Hayden.

SOUTHERN PACIFIC.—*Interest.*—The road has filed with the Interstate Commerce Commission a supplemental application requesting permission to devote \$3,520,000 of the unused balance of its \$22,000,000 loan from the Reconstruction Finance Corporation to the payment of interest on January 1 and \$1,810,000 to interest and maturing equipment trust certificates on January 15.

Dividends Declared

Cleveland, Cincinnati, Chicago & St. Louis.—5 Per Cent Preferred, \$1.25, quarterly; \$5.00 semi-annually, both payable January 31 to holders of record January 20.
Kansas, Oklahoma & Gulf.—Preferred, 50c, payable December 30 to holders of record December 26.

Average Prices of Stocks and of Bonds

	Dec. 26	Last week	Last year
Average price of 20 representative railway stocks..	37.90	38.50	22.10
Average price of 20 representative railway bonds..	67.05	66.96	54.58

Continued on next left-hand page



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Such improvements are necessary to influence the traveller to choose the railroads as means of transportation, but are costly to provide and do not add to efficiency or effect savings in operating costs. These additional expenditures

may be paid for, in part, out of savings effected in the locomotive boiler. The Elesco feed water heater is the equipment for bringing about this improvement; it reclaims waste heat and increases the efficiency of the locomotive boiler. The Elesco feed water heater reduces fuel, water, and boiler expenses . . . it adds capacity,

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Supply Trade

Joseph McNally, formerly connected with the **General American Tank Car Corporation**, Chicago, has been appointed sales engineer of **Iron & Steel Products, Inc.**

S. S. Bruce, traffic manager of the **Koppers Company**, Pittsburgh, Pa., has been elected to the board of directors of the **Koppers Products Company**. Mr. Bruce is also president and a director of the industrial Terminal Corporation and the Georgetown Railroad of Cincinnati. He is a director of the Wood Preserving Corporation, the National Lumber & Creosoting Company, the Ayer & Lord Tie Company, the Century Wood Preserving Company, and the Carolina Wood Preserving Company.

Philip C. Kemp, formerly a member of the law firm of Simpson, Thacher & Bartlett, New York, and more recently a deputy administrator of the N. R. A., has been appointed vice-president and general counsel of the **American Locomotive Company**. Mr. Kemp received his B. A. degree at the University of Colorado in 1917. Following two years in the World War as a First Lieutenant in the Field Artillery, he studied law at Columbia University where he received his LL.B. degree in 1920. From that time until July 1, 1933, he was associated with the law firm of Simpson, Thacher & Bartlett, being a member of this firm when he resigned to become a deputy administrator in the N. R. A., which position he held until his appointment as vice-president and general counsel of the American Locomotive Company, effective December 15.

Benjamin F. Harris, who will succeed F. W. Waterman as president of the **National Tube Company** with headquarters at Pittsburgh, Pa., on January 1, as was reported in the *Railway Age* of December 16, is at present president of the Oil Well Supply Company; both of these companies are now subsidiaries of the United States



Benjamin F. Harris

Steel Corporation. Mr. Harris first became connected with the steel industry when he entered the service of the American Sheet & Tin Plate Company in 1903.

He later became vice-president and general manager of the Wilson-Snyder Company, from which company he was transferred in 1929 to the presidency of the Oil Well Supply Company.

Hearing on Manufacturers' N.R.A. Codes

A public hearing on the codes submitted to the National Recovery Administration by several branches of the railway equipment and appliance industry was held before Deputy Administrator H. O. King at Washington on December 21 in connection with approximately forty separate codes representing industries affiliated with the Machinery and Allied Products Institute, which had been formed to advise member industries on code matters with a view to the establishment of uniform employment conditions. The proposed codes, which had already been the subject of numerous conferences and revisions for the purpose of bringing them into accord with the general policies established by the N.R.A., include practically uniform conditions as to wages, hours, and other labor provisions, but differ somewhat in the trade practice and administrative sections and leave full autonomy with each trade association concerned in while providing for separate code authorities for each industry. At the outset of the hearing J. W. O'Leary, president of the Machinery and Allied Products Institute, asked that the references to that organization in the various codes be deleted but he submitted in tentative form a proposal for provision for a consolidated code authority in addition to the ones separately provided for.

The proposed codes of special interest to the railroads are those of the Locomotive Institute, the Associated Builders of Small Locomotives, the Railway Appliance Manufacturers' Association, the Steel Tire Association, the Railway and Industrial Spring Association, the Diesel Engine Manufacturing Industry. Division Administrator Malcolm Muir, in a brief statement, explained that the purpose in consolidating the consideration of the codes was to save time.

The codes provide for a maximum work week of 40 hours but with provision for 48 hours in peak periods and under special conditions, with a minimum wage rate of 40 cents an hour except where the rate was lower on July 1, 1929, in which event the minimum may be as low as 35 cents. Much of the time of the hearing was taken up with a discussion of the labor provisions by representatives of the American Federation of Labor and of the labor advisory board of the N.R.A. who objected to the hours of labor provisions as not low enough to relieve unemployment, saying that many employees in the industry have been working less than 40 hours a week. The administration was asked also to require the various industries to file within 30 days after the approval of the codes their proposals for adjusting the wage rates above the minimum. Mr. O'Leary said that the labor provisions in the codes represented much study and negotiation and corresponded with several codes approved by the President. He pointed out that "quality help" is not paid

small wages in any of the industries under consideration.

John P. Frey, secretary of the Metal Trades Department of the A. F. of L. asked for a 35-hour week and a minimum of 45 cents an hour.

In general the codes provide for an initial period of 120 days after which they might be terminated by a vote of two-thirds of the employers assenting to a particular code.

A representative of the Division of Economic Research and Planning of the N.R.A. asked each industry to file statistics regarding their payrolls, products, and wages, showing the number employed at the minimum and the seasonal fluctuations in production and employment.

A hearing on the code proposed by the Manganese Track Society, on behalf of the railroad special track equipment manufacturing industry, has been set for December 29 before Deputy Administrator King. Codes for the Oxy-Acetylene industry and the metal tank industry have been approved by the President.

Railway Car Building Industry Code Hearing

Total sales of the railway car building industry during the first half of this year were but slightly more than 3 per cent of an estimated capital investment of \$270,000,000, proponents of a code of fair competition for that industry told the National Recovery Administration at the public hearing conducted before Assistant Deputy Administrator F. H. Kuhn, at Washington on December 27.

C. A. Liddle, president of the Pullman Car & Manufacturing Corporation, formally presented the code and stated that it had received written approval of each of the 20 members of the American Railway Car Institute, representing 96 per cent of the industry's volume of sales. After pointing out that total business had dropped from a value of \$258,926,973 in 1929 to \$7,523,000 in the first six months of 1933, with a consequent decrease in employment from 34,243 persons to 5,920 workers, Mr. Liddle asserted that it was "extremely doubtful" whether the slight interest now observable in new purchases of the industry's products would continue if production costs were increased beyond the point proposed in the code. Speaking to labor provisions of the code, F. A. Stevenson, also representing the institute, declared that the proposed 40-hour maximum week would operate to increase employment 20 per cent. He stated that the previous "customary" work-week ranged from 50 to 55 hours, and he cited this fact in support of the request for a 48-hour maximum week during any 12 weeks in a year to take care of "spasmodic" peak periods.

A. R. Shannon, Jr., representing the N.R.A. Legal Division, objected vigorously to what he characterized as "qualifications" of the proposed basic minimum wage of 40 cents per hour, and he expressed belief that these were "far too serious to find their way into any approved code." T. P. Kelly, representing the N.R.A. Research and Planning Division, subjected the code proponents to a series of searching questions dealing principally with provisions of

MERRY CHRISTMAS

AMERICAN LOCOMOTIVE COMPANY



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HAPPY NEW YEAR

the fair trade practice section. He objected, also, to the proposal to have all bids deposited in advance with the code authority, and to the provision which would limit productive capacity of the industry. At the conclusion of his interrogations, the deputy presiding asked that members of the code committee meet in later conference with Mr. Kelly in an effort to overcome the objections raised during the hearing. Emil Kekich, representing the N.R.A. Consumers' Advisory Board, presented a brief objecting to the proposed method for depositing bids with the code authority. He declared that such a procedure "might tend to collusion and allow departure from competitive practice." Mr. Kekich also objected to inclusion of an actual cost formula in the code, and asked that there be no restriction placed upon productive capacity.

After announcing that the code committee would meet with various representatives of the N.R.A. in a series of conferences to develop a generally satisfactory code for presentation to the President, Deputy Kuhn declared the hearing indefinitely recessed.

The proposed code includes an article "Concerning Sales," as follows:

SECTION 1. In each case wherein two or more employers shall be invited to submit proposals or bids to manufacture or build and sell or to repair any products of the Industry, each employer submitting a proposal or bid (a) shall reduce the same to writing, (b) shall state therein, among other things, terms of payment and delivery and the price, including the price of such alternates as shall be required or proposed, which price shall be not less than such employer's estimated cost (as hereinafter defined) in respect of the products and/or repairs covered by said proposal or bid, and (c) shall, coincident with the submission of such proposal or bid, send by mail, a full, true, and correct copy of such proposal or bid to the Secretary of the Institute or other agency designated by the Code Authority for the purpose. The employer's estimated cost shall be the sum of (1) the value of materials at current market prices at the place where used, (2) the cost of direct labor and (3) an adequate amount to cover overhead and all elements of cost other than those included in (1) and (2) of this sentence, including an amount for the use of any plant facilities employed, and subject, as aforesaid, shall be computed according to the method generally recognized in the Industry and at the time approved by the Code Authority. The Secretary of the Institute or other agency designated, as aforesaid, shall promptly send to each employer from whom or which he shall receive a copy of a proposal or bid in respect to any given products of the Industry and/or repairs, a copy of every proposal or bid received by him from each other employer in respect of such products and/or repairs. An employer failing or refusing in any case in accordance with the foregoing to submit a written proposal or bid and/or mail a copy thereof to said Secretary shall not manufacture or build and sell the Products of the Industry and/or make the repairs in respect of which proposals or bids shall, in that case, have been invited. No em-

ployer shall manufacture or build and sell or agree to manufacture or build and sell any Products of the Industry or make any repairs to Products of the Industry in respect to which proposals or bids shall have been invited, as aforesaid, at a price or on terms or conditions more favorable to the purchaser than the prices, terms, and conditions set forth in that proposal or bid from among those of which a copy shall have been sent to the Secretary of the Institute or other designated agency, as aforesaid, most favorable to the purchaser.

SEC. 2. For all the purposes of the Code, a proposal or bid submitted and a sale made and/or repair work done by any employer indirectly through any affiliated company of such employer or otherwise shall be deemed to be a proposal or bid submitted or a sale made and/or repair work done by such employer.

The article on "Productive Capacity" provides:

"It is the consensus of opinion in the Industry that until such time as the demand for its products cannot adequately be met by the use of existing capacities in the Industry, such capacities shall not be increased. Accordingly, unless and until the Code shall have been amended as hereinafter provided so as to permit it, or unless and until the Code Authority by a resolution passed at a meeting, or the written consent of Members of the Code Authority entitled to cast the number of votes required to carry a question at a meeting of the Code Authority shall permit it, no employer shall undertake the construction of any increased facilities for production and/or repair of Products of the Industry, provided that the provisions of this Article IX shall not be deemed to prohibit an employer from doing whatever in his or its opinion will tend to increase the efficiency of operation or the economy of production of his or its existing facilities whether by modernizing building(s) and/or equipment or both, or by rearranging, combining, or relocating plant(s) or parts thereof, or otherwise soever."

OBITUARY

Thomas Finigan, first vice-president of the American Brake Shoe & Foundry Co., with headquarters at Chicago, died on December 25 of heart disease at his home in that city, at the age of 51 years.

Frank L. Norton, vice-president of the Scullin Steel Company, died suddenly on December 21 in his office in the Grand Central Terminal, New York, after his return from a business trip.

TRADE PUBLICATION

TONCAN IRON PIPE FOR PERMANENCE—The Republic Steel Corporation, Youngstown, Ohio, has published a 64-page attractively-printed and illustrated booklet bearing this title which contains complete information regarding Toncan iron pipe. The booklet is divided into two principle parts. Part I, entitled Technical Data and Tests, outlines the development of Toncan copper molybdenum iron, gives its advantages as a pipe material, shows the results

of tests designed to determine the resistance of this metal to various destructive agencies, and discusses its welding properties. Part II, entitled Installations and Service Records, contains a list and many illustrations of the buildings, plants and other projects in which Toncan iron has been employed in some manner.

Construction

BESSEMER & LAKE ERIE.—The Pennsylvania Public Service Commission has ordered this road to build a four track bridge over its tracks and over Thorn creek in Pennsylvania township, Butler county, Pa., to eliminate two grade crossings, the Butler Plank road crossing and the Three Degree road crossing. This is to be accomplished by re-routing one of the highways and building a four span bridge to consist of two plate girder type spans, 67 ft. 6 in. long, with reinforced concrete approach spans of 45 ft. at each end. The estimated cost of the bridge is \$55,534, the work to be completed on or before September 1, 1934.

DELAWARE, LACKAWANNA & WESTERN.—The New Jersey Board of Public Utility Commissioners has ordered this road to begin work by February 1, next, on the elimination of the grade crossing of the Morris & Essex, at Salem street, Dover, N. J., and to complete the work within six months. The plans call for building a three-span bridge over the railroad tracks comprising a plate girder center span and two concrete approach spans. The estimated cost is \$86,872 exclusive of land required for the project.

DELAWARE, LACKAWANNA & WESTERN.—The New York Public Service Commission has approved as not excessive a low bid of \$201,489 submitted by the J. F. Morgan Company, Olean, N. Y., for the elimination of the Bordens, Mills road and Wolf run crossings of this road in the towns of Bath and Campbell, Steuben county, N. Y. This was the lowest of five bids received for the work and the awarding of the contract was directed. Another report on this project appeared in the *Railway Age* of November 4, page 680.

MISSOURI-KANSAS-TEXAS.—Agreements have been reached with the state of Texas for the construction of six highway grade separations, including three underpasses and three overpasses, using funds allotted to the state by the federal government. These grade separations on the Katy are in addition to those reported in the *Railway Age* for November 25. The underpasses will be located as follows: Eureka (Houston), State Highway No. 6; Wichita Falls, U. S. Highway No. 370; and Sealy, State Highway No. 38. The overpasses will be located at Henrietta, State Highway No. 5; at Waco, U. S. Highway No. 81; and at Denison, State Highway No. 160. In addition improvements are to be made in the underpass carrying U. S. Highway No. 81 under the railroad's tracks at Hillsboro.



Car repairing is a continuous job. But the frequency with which cars appear back on the "rip" track can be lessened by the use of longer lasting materials in making repairs. » » » The quick rusting through of car plates in exposed locations need no longer be tolerated. » » » Toncan Iron car plates resist corrosion better than ordinary car plates due to their special alloy composition of refined iron, copper and molybdenum. » » » Many miles of freight cars built of Toncan Iron plates are enjoying lower maintenance due to the superior rust resistance of this modern iron. » » » For the sake of future maintenance expense, make your repairs with Toncan Iron.

Toncan Iron Boiler Tubes, Pipe, Plates, Culverts, Rivets, Tender Plates and Firebox Sheets • Sheets and Strip for special railroad purposes • Agathon Alloy Steels for Locomotive Parts • Agathon Engine Bolt Steel • Agathon Iron for pins and bushings • Agathon Staybolt Iron • Climax Steel Staybolts • Upson Bolts and Nuts • Track Material, Maney Guard Rail Assemblies • Enduro Stainless Steel for dining car equipment, for refrigeration cars and for firebox sheets • Agathon Nickel Forging Steel.

The Birdsboro Steel Foundry & Machine Company of Birdsboro, Pa. has manufactured and is prepared to supply, under license, Toncan Copper Molybdenum Iron casings for locomotives.

REPUBLIC STEEL
C O R P O R A T I O N
GENERAL OFFICES — R — YOUNGSTOWN, OHIO

TONCAN
COPPER
MOLYBDENUM
IRON

Railway Officers

EXECUTIVE

Charles D. Mackay, whose appointment as assistant vice-president of the Southern, with headquarters at Washington, D. C., was reported in the *Railway Age* of December 16, was born on September 22, 1884, at Durham, S. C. He was educated in the public schools of Durham, Wilmington and Raleigh, N. C., and at Kings Business College, Raleigh, N. C., and entered railway service in September, 1901, as clerk in the freight station of the Southern at Raleigh. From 1902 to 1903, he served as secretary and master mechanic for the Seaboard Air Line and from the latter date until December, 1903, he was clerk in the office of the first vice-president of the Southern. Mr. Mackay was secretary to the first vice-president of the same road from 1906 to 1915, and from the latter date until 1917, he served as secretary of various Southern Railway subsidiary companies. He became assistant to the vice-president (corporate) in 1918 and in 1920 he was appointed a vice-president of various subsidiaries of the Southern. He was appointed assistant to the vice-president in charge of personnel of the Southern in 1921, serving in that position until December 9 of this year, when he was appointed to his present position as assistant vice-president.

PURCHASES AND STORES

Effective January 1 the jurisdiction of **J. D. Landis**, purchasing agent of the Reading has been extended to include the Central of New Jersey and the office of manager of purchases and stores of the latter company has been abolished. The jurisdiction of **W. A. Clem**, assistant purchasing agent, and **W. H. Morris**,

general storekeeper of the Reading has also been extended to include the Central of New Jersey. Mr. Landis and Mr. Clem will have their headquarters at Philadelphia, as before, and Mr. Morris will continue to have his headquarters at Reading, Pa.

OPERATING

E. A. Workman has been appointed special representative for the Reading and the Central of New Jersey, with headquarters at Reading terminal, Philadelphia, Pa., effective January 1.

TRAFFIC

Edward Dixon has been appointed assistant freight claim agent for the Reading, with headquarters at Philadelphia, Pa.

The jurisdiction of **T. C. Smith**, freight claim agent of the Central of New Jersey at Jersey City, N. J., has been extended to include the Reading.

A. M. Harris, division freight and passenger agent for the Missouri Pacific Lines at Monroe, La., has been promoted to the newly-created position of assistant general freight and passenger agent at Lake Charles, La. **J. R. James**, perishable freight agent at Los Angeles, Cal., has been appointed district manager of perishable service, with the same headquarters, succeeding **F. H. Harden**, who has been appointed a special representative.

Clifford P. Barrett, general western passenger agent of the Delaware, Lackawanna & Western, with headquarters at Chicago, Ill., will retire from the service of that company at the end of the present year, after having completed 33 years of continuous service in the passenger department of that road. **W. E. Carbone**, general agent, passenger department, with headquarters at Buffalo, N. Y., will succeed Mr. Barrett as general western pas-

senger agent at Chicago. **Louis F. Hein-
eck** will in turn replace Mr. Carbone as general agent with headquarters at Buffalo.

W. W. Baum, general agent for the Litchfield & Madison, with headquarters at Chicago, has been appointed assistant traffic manager with the same headquarters, to succeed **A. C. Atkinson**. **Alfred B. Smith** has been appointed general agent at Chicago to succeed Mr. Baum.

OBITUARY

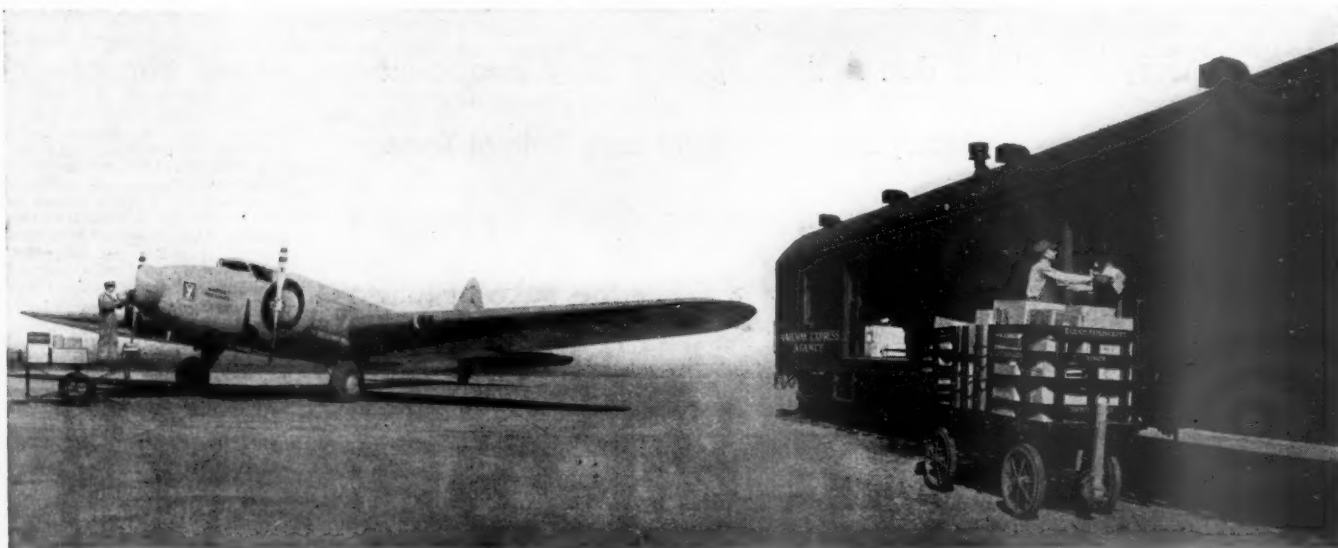
Charles H. Hix, president of the Virginian, with headquarters at Norfolk, Va., died of a heart ailment at his home in that city on December 23.

Allen Butler Squire, former assistant treasurer of the New York, New Haven & Hartford, died of a heart attack at his home in New Haven, Conn., on December 26.

A. D. Thomas, who was treasurer of the Lake Erie & Western until its consolidation with the New York, Chicago & St. Louis in 1922, died at his home in Highland Park, Fla., on December 12 at the age of 83 years.

Milner Seargeant, who retired on August 1, 1931, as superintendent of the Atlanta division of the Louisville & Nashville, died at his home at Etowah, Tenn., on November 19. Mr. Seargeant, who was 66 years of age, was a native of Illinois and entered the service of the L. & N. at the age of 20. After serving for a time as a telegraph operator, Mr. Seargeant was promoted to assistant train dispatcher in 1890 and then to master of trains in 1894. In 1913 he was further advanced to inspector of transportation and two years later he was made superintendent of the Eastern Kentucky division, being transferred to the Atlanta division in 1921. Mr. Seargeant retired in 1931, following the consolidation of the Knoxville and Atlanta divisions.

* * * *



Air-and-Rail Express Provides Over-night Delivery from the Atlantic and Pacific Seaboards to Mid-continent Areas

Photo shows United Air Lines express-plane transferring to a Railway Express Agency express car on a Union Pacific train at Omaha, Neb., at 10:28 a. m. lading dispatched out of Newark (N. J.) Airport at 1:30 the same morning.



PAST, PRESENT AND FUTURE

From the crude transport methods of the past, no one could foresee the rapidity of today's transit. Nor can we foresee what forward step the railways may take in the future. Experience, however, enabled us progressively to produce signal systems which met the oft changed operation and improvements. This fifty-three years of experience will be an important factor in the design, construction and installation of signal systems that will successfully meet the severe demands of the future's still higher speeds with increased safety for passengers, cargo and equipment.

1881



1933

Union Switch & Signal Co.
SWISSVALE, PA.

NEW YORK

MONTREAL

CHICAGO

ST. LOUIS

SAN FRANCISCO

Operating Statistics of Large Steam Railways—Selected Items for the Month of October, 1933,

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles		Car-miles		Ton-miles (thousands)		Average number of locomotives on line				
			Principal and helper	Light	Loaded (thousands)	Per cent loaded	Gross Excluding locomotives and tenders	Net Revenue and non-revenue	Serv-ice-able	Un-serv-iceable	Per cent un-serv-iceable	Stored	
New England Region:													
Boston & Albany.....	1933	402	126,055	130,986	8,556	3,231	67.2	166,021	54,086	60	45	42.8	12
.....	1932	402	119,028	124,256	8,278	3,240	67.6	167,171	56,105	59	53	47.5	12
Boston & Maine.....	1933	2,052	276,773	312,226	28,616	9,390	67.2	508,375	187,723	128	159	55.5	12
.....	1932	2,057	263,503	299,027	26,506	8,961	67.9	475,916	176,361	135	154	53.2	23
N. Y., New H. & Hartf.....	1933	2,044	343,315	417,240	19,620	11,044	65.1	582,056	207,975	208	154	42.6	25
.....	1932	2,038	336,869	409,161	23,631	10,869	65.4	584,840	216,985	214	138	39.1	10
Great Lakes Region:													
Delaware & Hudson.....	1933	848	208,962	279,758	32,365	6,934	59.6	439,029	193,951	249	27	9.6	144
.....	1932	848	212,333	284,904	31,767	6,936	60.0	439,771	197,206	257	23	8.3	157
Del., Lack. & Western.....	1933	998	350,761	383,329	48,558	11,145	65.2	634,545	238,403	198	61	23.6	57
.....	1932	998	346,507	382,232	50,980	11,470	65.9	657,059	257,190	214	59	21.7	60
Erie (incl. Chi. & Erie)....	1933	2,316	708,322	735,960	59,155	27,740	60.5	1,754,810	642,335	308	193	38.5	75
.....	1932	2,316	697,492	735,678	43,826	28,818	60.0	1,841,822	689,553	334	165	33.0	100
Grand Trunk Western.....	1933	1,008	200,364	201,576	1,793	4,717	59.4	289,352	98,100	74	75	50.4	4
.....	1932	1,023	182,730	185,008	1,636	4,342	60.9	265,287	95,601	91	63	41.1	27
Lehigh Valley.....	1933	1,335	390,052	411,091	39,243	11,738	62.7	719,099	285,524	166	150	47.4	7
.....	1932	1,343	367,376	387,002	35,796	11,496	63.3	710,371	294,198	188	124	39.8	31
Michigan Central.....	1933	1,957	356,477	357,577	10,121	11,027	59.5	656,506	217,150	138	50	26.6	31
.....	1932	2,039	341,753	341,938	8,797	9,705	58.7	599,376	204,158	115	87	43.0	28
New York Central.....	1933	6,426	1,489,973	1,594,033	106,666	53,193	58.8	3,385,894	1,350,267	573	612	51.7	25
.....	1932	6,388	1,541,091	1,656,130	119,147	54,880	59.3	3,524,737	1,442,262	601	694	53.6	45
New York, Chi. & St. L.....	1933	1,660	495,105	521,657	5,257	13,998	60.8	838,978	293,974	129	61	32.2	14
.....	1932	1,661	448,004	461,965	5,646	13,725	60.9	805,781	279,741	138	108	44.0	39
Pere Marquette.....	1933	2,254	325,550	335,591	3,004	7,176	57.7	475,784	182,750	116	56	32.8	13
.....	1932	2,286	310,130	322,984	3,004	7,224	58.3	480,726	187,967	128	47	26.8	25
Pitts. & Lake Erie.....	1933	231	66,771	68,722	1,070	2,273	57.4	186,163	102,381	32	39	54.6	5
.....	1932	235	60,472	62,301	2,503	2,553	56.5	225,882	126,461	29	55	65.0	4
Wabash.....	1933	2,444	505,738	512,999	10,237	15,097	62.8	875,923	292,639	161	165	50.6	39
.....	1932	2,497	499,186	508,579	9,785	15,508	63.6	874,698	298,523	182	180	49.8	31
Central Eastern Region:													
Baltimore & Ohio.....	1933	6,282	1,395,083	1,683,255	183,990	40,189	58.5	2,785,475	1,209,808	690	631	47.8	79
.....	1932	6,277	1,369,913	1,620,998	178,485	39,771	58.8	2,729,880	1,182,732	734	589	44.5	129
Big Four Lines.....	1933	2,655	610,230	627,810	23,815	17,203	58.7	1,124,269	484,278	223	167	42.8	14
.....	1932	2,664	590,970	608,221	17,738	17,282	59.7	1,150,054	521,213	255	171	40.1	14
Central of New Jersey.....	1933	692	135,932	152,092	27,224	4,460	56.6	308,836	139,944	105	67	39.1	43
.....	1932	692	149,516	163,228	27,367	4,881	55.9	346,541	160,984	115	63	35.6	53
Chicago & Eastern Ill.....	1933	939	182,418	183,728	2,989	3,846	60.1	259,683	111,210	60	112	62.5	13
.....	1932	939	173,084	173,457	2,985	3,677	62.0	240,895	104,938	77	85	52.4	34
Elgin, Joliet & Eastern.....	1933	446	82,563	83,275	850	1,818	57.3	145,347	73,482	69	21	23.9	17
.....	1932	447	64,307	64,725	1,031	1,535	56.7	124,368	59,853	81	9	10.2	39
Long Island.....	1933	396	33,154	34,144	14,437	335	54.6	24,772	9,918	31	22	41.7	..
.....	1932	396	36,552	37,756	14,366	416	53.1	30,669	11,884	39	10	20.8	8
Pennsylvania System.....	1933	10,082	2,661,847	2,935,314	304,364	90,551	62.2	5,947,248	2,605,365	1,507	911	37.7	342
.....	1932	10,528	2,721,204	3,029,942	309,777	94,536	60.5	6,326,216	2,690,112	1,951	563	22.4	870
Reading.....	1933	1,454	401,621	436,690	46,403	10,920	57.6	804,381	369,333	254	114	30.9	81
.....	1932	1,454	418,228	453,715	48,534	11,475	57.7	847,161	401,200	271	115	29.8	92
Pocahontas Region:													
Chesapeake & Ohio.....	1933	3,122	850,998	899,719	37,321	36,668	53.6	3,169,409	1,692,218	467	207	30.8	140
.....	1932	3,136	890,678	935,324	31,783	38,308	53.6	3,367,408	1,823,602	534	141	21.0	213
Norfolk & Western.....	1933	2,163	592,315	615,081	27,309	23,223	57.1	1,947,309	1,010,858	408	61	12.9	165
.....	1932	2,258	602,025	628,500	28,963	22,827	57.1	1,920,779	1,002,532	424	61	12.6	180
Southern Region:													
Atlantic Coast Line.....	1933	5,144	475,874	477,431	5,726	9,170	63.9	484,930	170,816	363	128	26.1	135
.....	1932	5,144	424,276	424,896	5,694	8,472	65.4	439,119	156,506	373	92	19.8	158
Central of Georgia.....	1933	1,904	202,462	203,430	3,150	4,439	69.8	229,935	84,500	103	40	27.8	..
.....	1932	1,900	196,281	197,784	2,741	4,368	69.4	232,041	88,095	87	56	39.2	3
Ill. Cent. (incl. Y. & M. V.)..	1933	6,643	1,362,214	1,377,895	23,312	31,147	58.4	2,088,094	831,871	593	343	36.7	11
.....	1932	6,658	1,399,696	1,418,059	23,489	33,169	58.6	2,260,936	928,647	660	270	29.0	26
Louisville & Nashville.....	1933	5,112	935,329	1,006,772	28,889	20,672	56.5	1,484,447	690,200	330	315	48.9	12
.....	1932	5,182	961,875	1,033,221	31,304	21,072	56.9	1,511,406	712,159	390	321	45.2	107
Seaboard Air Line.....	1933	4,301	414,421	421,640	3,249	9,453	64.6	537,560	197,958	220	66	23.1	30
.....	1932	4,377	419,477	422,753	2,443	9,171	61.9	530,463	191,022	256	42	14.1	67
Southern.....	1933	6,602	1,071,176	1,088,874	17,613	24,586	65.1	1,358,011	503,263	693	220	24.1	187
.....	1932	6,656	1,071,073	1,083,259	17,570	24,839	65.4	1,356,423	496,849	728	225	23.7	254
Northwestern Region:													
Chi. & North Western.....	1933	8,443	1,039,124	1,108,882	25,266	25,706	60.5	1,608,451	565,566	580	227	28.1	122
.....	1932	8,443	1,014,772	1,076,140	24,703	25,207	60.9	1,556,161	504,271	620	207	25.0	210
Chicago Great Western.....	1933	1,463	228,592	229,644	20,164	6,898	57.2	443,919	150,566	64	33	34.2	3
.....	1932	1,463	234,264	236,258	25,353	7,372	59.8	454,308	160,658	69	41	37.1	6
Chi., Milw., St. P. & Pac.....	1933	11,195	1,224,088	1,295,403	56,517	32,012	59.4	2,046,661	799,048	608	281	31.6	209
.....	1932	11,246	1,247,835	1,325,179	60,295	32,414	59.1	2,093,566	834,967	755	157	17.2	331
Chi., St. P., Minneap. & Om.....	1933	1,672	212,450	222,479	9,813	4,373	65.1	263,681	101,707	130	27	17.0	58
.....	1932	1,714	218,221	228,325	10,677	4,554	64.4	275,328	108,633	142	30	17.3	68
Great Northern.....	1933	8,424	829,690	837,178	26,374	26,661	59.4	1,773,984	715,968	466	147	24.0	96
.....	1932	8,430	785,914	795,194	25,274	25,604	60.5	1,637,999	627,147	504	105	17.2	126
Minneap., St. P. & S. St. M.....	1933	4,281	347,388	353,718	3,980	7,946	61.7	471,407	192,765	134	29	17.8	10
.....	1932	4,325	350,562	355,420	2,004								

Compared with October, 1932, for Roads with Annual Operating Revenues Above \$25,000,000

Region, road and year	Average number of freight cars on line			Per cent un-serv-ice-able	Gross ton-miles per train-hour, ex-cluding locomotives and tenders	Gross ton-miles per train-mile, ex-cluding locomotives and tenders	Net ton-miles per train-mile	Net ton-miles per loaded car-mile	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders	Loco-motive-miles per loco-motive-day
	Home	Foreign	Total										
New England Region:													
Boston & Albany.....1933	3,806	3,501	7,307	30.0	21,862	1,317	429	16.7	239	21.2	4,343	152	43.1
1932	4,482	2,839	7,321	35.6	21,930	1,404	471	17.3	247	21.1	4,505	154	38.2
Boston & Maine.....1933	10,129	7,652	17,781	22.2	25,908	1,837	678	20.0	341	25.4	2,951	103	38.4
1932	11,069	7,470	18,539	17.5	24,044	1,811	671	19.7	308	23.0	2,772	103	36.3
N. Y., New H. & Hartf.....1933	15,611	10,004	25,615	11.0	25,610	1,695	606	18.8	262	21.3	3,282	110	38.9
1932	16,313	10,523	26,836	9.7	25,277	1,736	644	20.0	261	20.0	3,435	112	39.7
Great Lakes Region:													
Delaware & Hudson.....1933	10,897	3,010	13,907	4.0	26,708	2,101	928	28.0	450	27.0	7,377	109	36.5
1932	11,190	2,656	13,846	4.5	25,990	2,071	929	28.4	459	26.9	7,501	118	36.5
Del., Lack. & Western.....1933	17,351	4,597	21,948	12.8	26,391	1,809	680	21.4	350	25.1	7,705	143	53.8
1932	17,790	4,205	21,995	10.9	26,686	1,896	742	22.4	377	25.5	8,312	136	51.2
Erie (incl. Chi. & Erie).....1933	32,393	13,158	45,551	5.1	39,464	2,477	907	23.2	455	32.5	8,946	102	51.2
1932	35,824	12,080	47,904	5.5	40,527	2,641	989	23.9	464	32.3	9,604	99	50.4
Grand Trunk Western.....1933	5,957	7,830	13,787	21.3	26,167	1,444	490	20.8	230	18.6	3,138	106	44.2
1932	5,452	7,716	13,168	13.7	22,668	1,452	523	22.0	234	17.5	3,014	114	39.0
Lehigh Valley.....1933	18,454	6,535	24,989	17.7	31,425	1,844	732	24.3	369	24.2	6,898	139	46.0
1932	19,365	5,078	24,443	18.3	31,596	1,934	801	25.6	388	24.0	7,065	132	43.6
Michigan Central.....1933	22,848	18,571	41,419	13.6	32,959	1,842	609	19.7	169	14.4	3,579	117	63.2
1932	23,706	15,618	39,324	10.2	29,793	1,754	597	21.0	167	13.6	3,230	122	56.2
New York Central.....1933	66,496	61,038	127,534	22.4	35,177	2,272	906	25.4	342	22.9	6,778	102	46.3
1932	84,749	57,092	141,841	20.7	34,028	2,287	936	26.3	328	21.1	7,284	100	44.2
New York, Chi. & St. L.....1933	9,241	6,722	15,963	5.8	30,296	1,695	594	21.0	594	46.6	5,712	106	89.1
1932	15,490	6,735	22,225	13.6	30,321	1,799	624	20.4	406	32.7	5,434	99	61.3
Pere Marquette.....1933	13,118	4,745	17,863	2.8	24,373	1,461	561	25.3	330	22.5	2,615	96	63.4
1932	13,831	4,611	18,442	3.8	24,577	1,550	606	26.0	329	21.7	2,652	90	60.2
Pitts. & Lake Erie.....1933	14,667	10,262	24,929	33.3	40,505	2,788	1,533	45.0	132	5.1	14,285	115	31.8
1932	18,041	7,056	25,097	26.5	52,567	3,735	2,091	49.5	163	5.8	17,346	96	24.9
Wabash.....1933	15,138	8,312	23,450	5.0	34,035	1,732	579	19.4	403	33.1	3,862	111	51.8
1932	19,283	7,607	26,890	9.1	33,874	1,752	598	19.2	358	29.3	3,857	107	46.1
Central Eastern Region:													
Baltimore & Ohio.....1933	85,484	22,654	108,138	19.8	25,589	1,997	867	30.1	361	20.5	6,212	151	45.6
1932	97,529	17,898	115,427	13.0	25,584	1,993	863	29.7	331	18.9	6,078	147	43.9
Big Four Lines.....1933	18,827	22,132	40,959	15.9	31,983	1,842	794	28.2	381	23.1	5,885	115	53.9
1932	21,674	19,604	41,278	17.6	32,498	1,946	882	30.2	407	22.6	6,312	110	47.4
Central of New Jersey.....1933	16,733	6,859	23,592	31.3	27,001	2,272	1,030	31.4	191	10.8	6,524	139	33.6
1932	17,294	7,004	24,298	21.0	29,065	2,318	1,077	33.0	214	11.6	7,504	125	34.5
Chicago & Eastern Ill.....1933	5,874	2,545	8,419	22.5	24,893	1,424	610	28.9	426	24.5	3,821	126	35.0
1932	6,088	2,146	8,234	17.2	23,006	1,392	606	28.5	411	23.2	3,605	128	35.0
Elgin, Joliet & Eastern.....1933	9,439	3,697	13,136	19.4	15,264	1,760	890	40.4	180	7.8	5,315	117	30.2
1932	9,670	3,886	13,556	13.9	16,741	1,934	931	39.0	142	6.4	4,319	117	23.6
Long Island.....1933	773	3,914	4,687	1.6	5,923	747	299	29.6	68	4.2	808	281	29.7
1932	779	3,861	4,640	1.1	6,548	839	325	28.6	83	5.5	968	308	34.3
Pennsylvania System.....1933	258,013	47,401	305,414	11.4	31,644	2,234	979	28.8	275	15.4	8,336	124	43.2
1932	248,999	48,387	297,386	8.4	32,295	2,325	989	28.5	292	16.9	8,242	122	42.9
Reading.....1933	34,956	8,821	43,777	21.2	24,772	2,003	920	33.8	272	14.0	8,197	151	42.4
1932	38,825	7,693	46,518	15.9	23,217	2,026	959	35.0	278	13.8	6,903	146	41.9
Pocahontas Region:													
Chesapeake & Ohio.....1933	44,144	10,837	54,981	2.2	51,164	3,724	1,989	46.1	993	40.1	17,484	75	44.8
1932	42,689	9,538	52,227	2.3	50,699	3,781	2,047	47.6	1,126	44.1	18,760	73	46.2
Norfolk & Western.....1933	35,801	4,582	40,383	3.7	48,033	3,288	1,707	43.5	807	32.5	15,077	104	44.3
1932	36,846	4,468	41,314	2.6	46,160	3,191	1,665	43.9	783	31.2	14,321	108	43.8
Southern Region:													
Atlantic Coast Line.....1933	26,891	4,590	31,481	25.9	17,368	1,019	359	18.6	175	14.7	1,071	120	31.8
1932	28,518	4,429	32,947	13.1	17,513	1,035	369	18.5	153	12.7	981	119	29.9
Central of Georgia.....1933	7,203	2,123	9,326	26.6	20,404	1,136	417	19.0	292	22.0	1,432	128	46.6
1932	7,176	1,886	9,062	25.2	20,260	1,182	449	20.2	314	22.4	1,496	127	45.2
Ill. Cent. (incl. Y. & M. V.).....1933	52,903	14,619	67,522	31.1	24,284	1,533	611	26.7	397	25.5	4,039	135	48.3
1932	52,845	14,819	67,664	20.2	24,726	1,615	663	28.0	443	27.0	4,499	134	50.0
Louisville & Nashville.....1933	46,906	6,644	53,550	27.2	23,347	1,587	738	33.4	416	22.0	4,355	139	51.8
1932	50,228	6,600	56,828	23.2	22,961	1,571	740	33.8	404	21.0	4,434	137	48.3
Seaboard Air Line.....1933	13,307	4,262	17,569	9.7	20,837	1,297	478	20.9	363	26.9	1,485	125	47.9
1932	15,371	3,803	19,174	14.5	19,918	1,265	455	20.8	321	24.9	1,408	128	46.0
Southern.....1933	31,757	18,057	49,814	21.5	20,608	1,268	470	20.5	326	24.5	2,459	149	39.1
1932	41,406	22,936	64,342	15.5	20,264	1,266	464	20.0	249	19.0	2,408	148	37.3
Northwestern Region:													
Chi. & North Western.....1933	44,626	18,396	63,022	10.1	23,405	1,548	544	22.0	289	21.8	2,161	124	45.4
1932	45,504	19,646	65,150	9.3	22,921	1,534	497	20.0	250	20.5	1,927	120	42.9
Chicago Great Western.....1933	3,100	3,041	6,141	5.7	34,402	1,942	659	21.8	791	63.3	3,319	134	82.6
1932	5,095	3,528	8,623	13.2	32,833	1,939	686	21.8	601	46.1	3,542	132	76.5
Chi., Milw., St. P. & Pac.....1933	58,227	14,883	73,110	4.5	25,737	1,672	653	25.0	353	23.8	2,302	121	49.1
1932	60,950	14,404	75,354	3.8	25,009	1,678	669	25.8	357	23.5	2,395	121	49.0
Chi., St. P., Minneap. & Om.....1933	1,889	6,394	8,283	11.1	18,057	1,241	479	23.3	396	26.2	1,963	122	47.9
1932	2,169	7,237	9,406	9.3	17,930	1,262	498	23.9	373	24.3	2,045	114	45.0
Great Northern.....1933	42,843	12,754	55,597	5.3	31,436	2,138	863	26.9	415	26.1	2,742	117	45.4
1932	43,902	12,193	56,095	4.6	30,669	2,084	798	24.5	361	24.3	2,400	118	43.5
Minneap., St. P. & S. St. M.....1933	17,712	3,251	20,963	4.6	20,611	1,357	555	24.3	297	19.8	1,453	106	70.8
1932	20,507	2,811	23,318	4.5	18,371	1,192	510	24.0	247	15.4	1,333	108	58.8
Northern Pacific.....1933	40,719	4,742	45,461	12.1	26,528	1,806	765	24.9	318	18.9	2,252	155	42.3
1932	42,816	4,537	47,353	9.3</									

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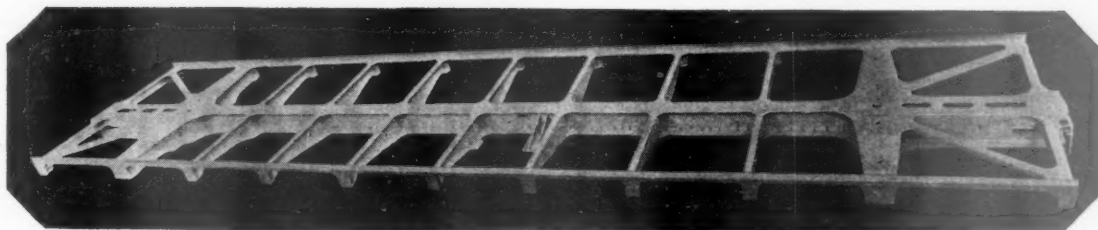
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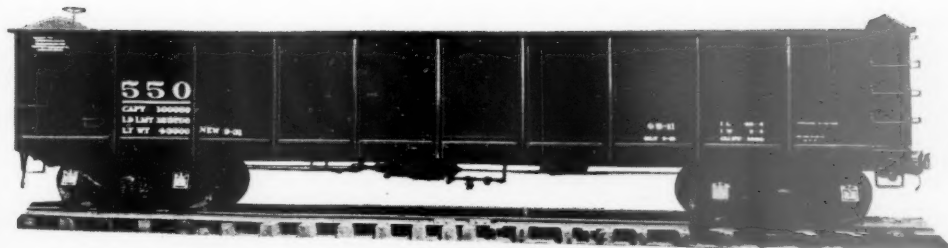


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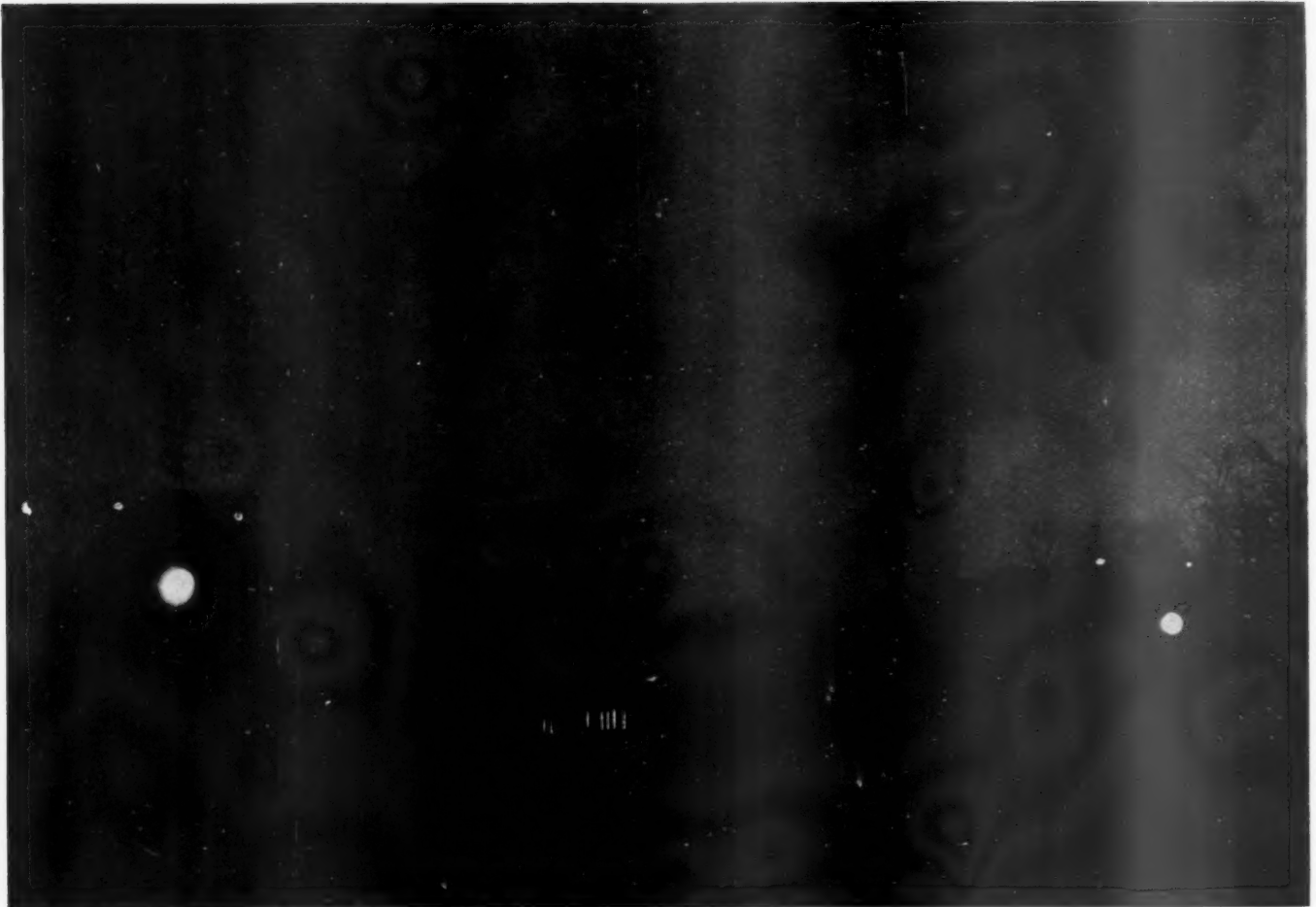


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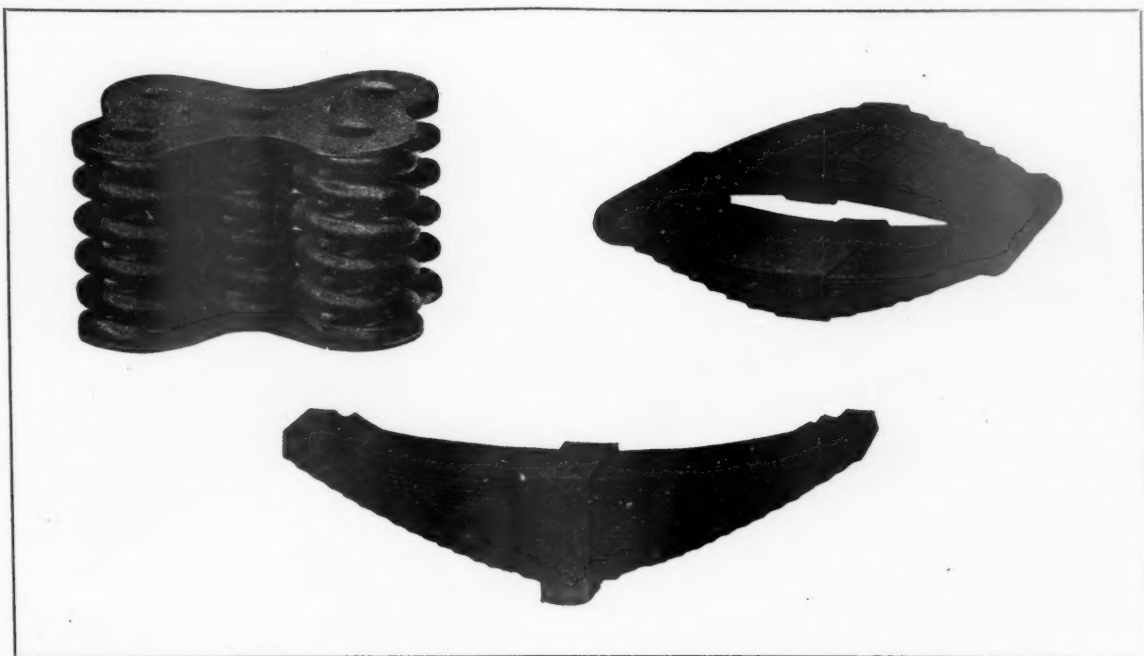
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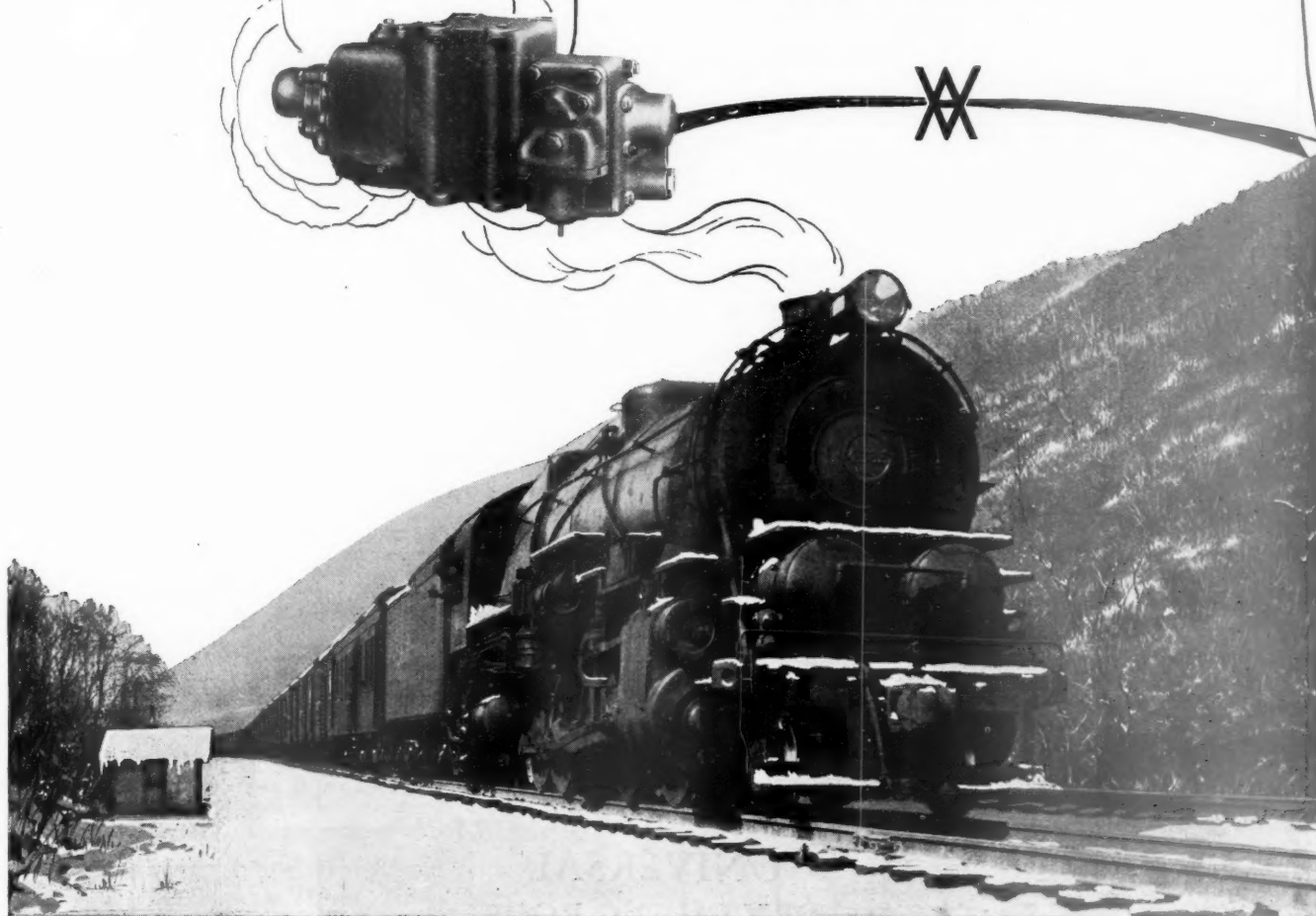
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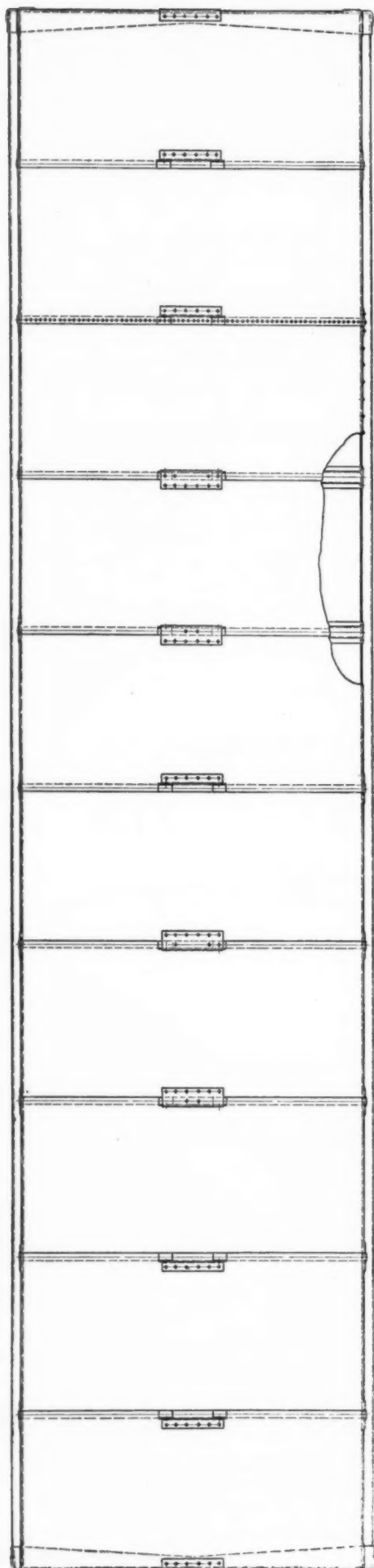
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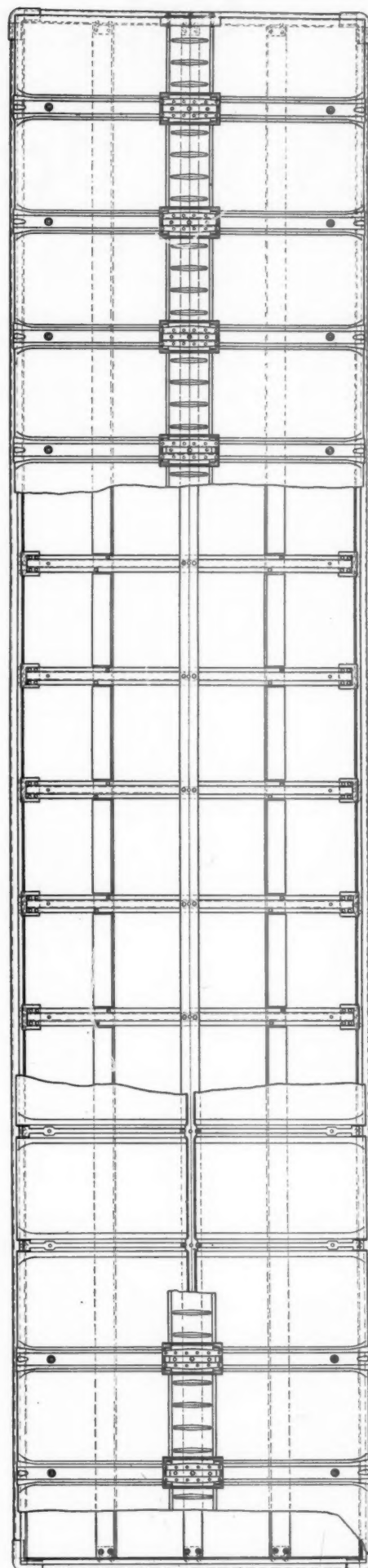
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REGULATION OF RAILROAD FINANCE

By

John H. Frederick, Ph. D.,

Frank T. Hypps, Ph. D.,

and

James M. Herring, Ph. D.

*Instructors in the Wharton School of Finance and
Commerce; University of Pennsylvania*

Regulation of the financial affairs of railroads by the Federal government through the Interstate Commerce Commission, under the Transportation Act of 1920, is clearly explained in this book. The various tests applied by the Commission in determining the elements of public interest to which the statute usually refers are traced, together with the nature and reasons for the Commission's action in regulating the financial affairs of the railroads.

Contents

Introduction—Certificates of Public Convenience and Necessity for Construction and Abandonment of Railroads—The Acquisition of Control of Carriers—The Recapture of Excess Earnings—The Issuance of Securities and Assumption of Obligations—Interlocking Directorates—Appendices: Provisions of the Interstate Commerce Act Administered by the Finance Bureau of the Interstate Commerce Commission—New Railroad Construction—Abandonments—Bibliography—Index.

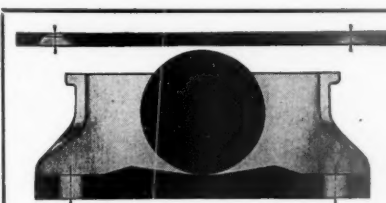
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DECEMBER 30, 1933

Railway Age

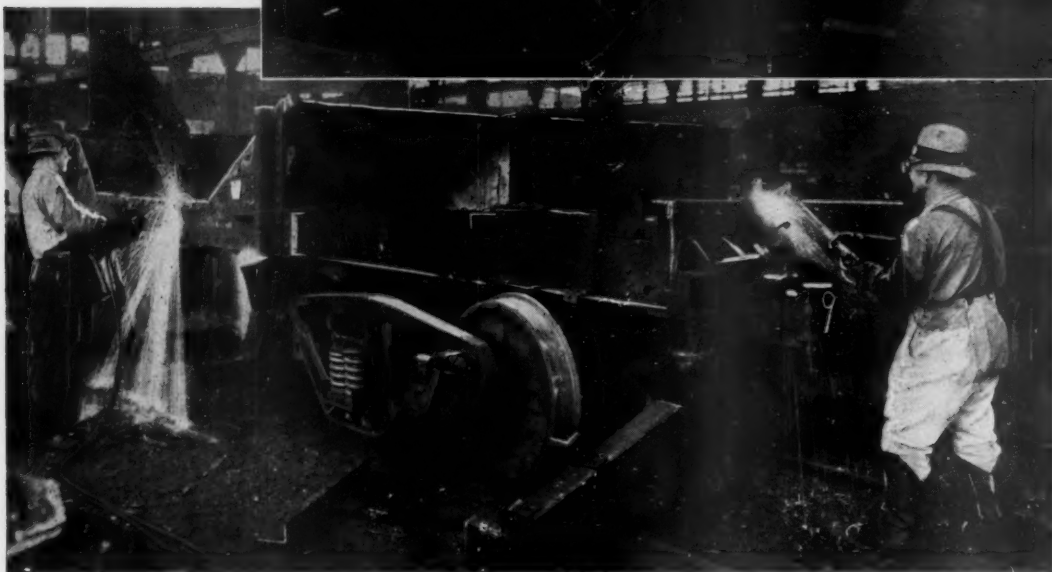
FOUNDED IN 1856

TRANSPORTATION LIBRARY

Railroad Business Is Better

ONE thing is certain. Railroad business is better. Railroad freight traffic was relatively larger in December than in any other month of 1932, and, therefore, the improvement in December, 1933, over December, 1932, is both significant and substantial. There is no prospect of any such decline in the first quarter of 1934 as occurred in the first quarter of 1933, and the business barometer clearly forecasts better business throughout 1934 than in 1933.

*An excerpt from an editorial in this issue,
entitled "Improvement in Business Resumed"*



Put teeth in your 1934 drive for greater economy, with a car and locomotive demolition program

Turning obsolete cars and locomotives into profits has been made practicable by the OXYACETYLENE CUTTING TORCH. A typical example: The yield from 2000 cars was 27,841 tons of salable scrap and 1888 tons of stripped material in usable condition.

Many railroads are already engaged in this sound economic practice. The opportunity is open to every railroad to do likewise. AIRCO'S RAILROAD DEPARTMENT, a pioneer in perfecting car and locomotive demolition practice, will be glad to aid in initiating your program.

AIR REDUCTION SALES COMPANY



General Offices, 60 East 42nd St., New York, N. Y.

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GOOD ENGINES

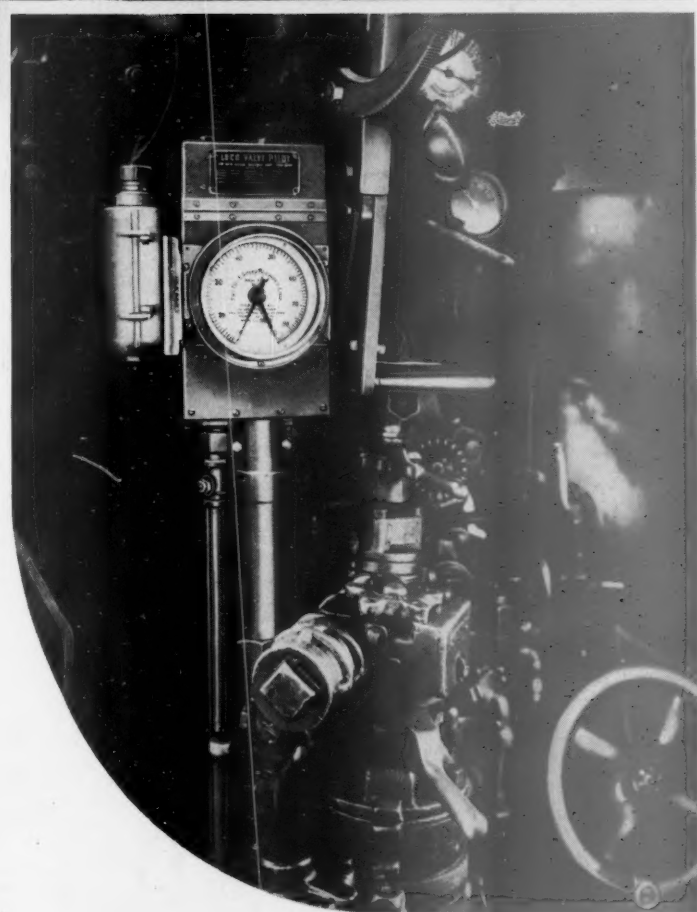
*Made
Better*



THIS locomotive, as you see it, did a good job. But with the application of the LOCO VALVE PILOT it is now doing a very much better one and making the schedule more easily.

The most successful railroads of the future will be those on which no effort is spared to effect greater savings and increased efficiency.

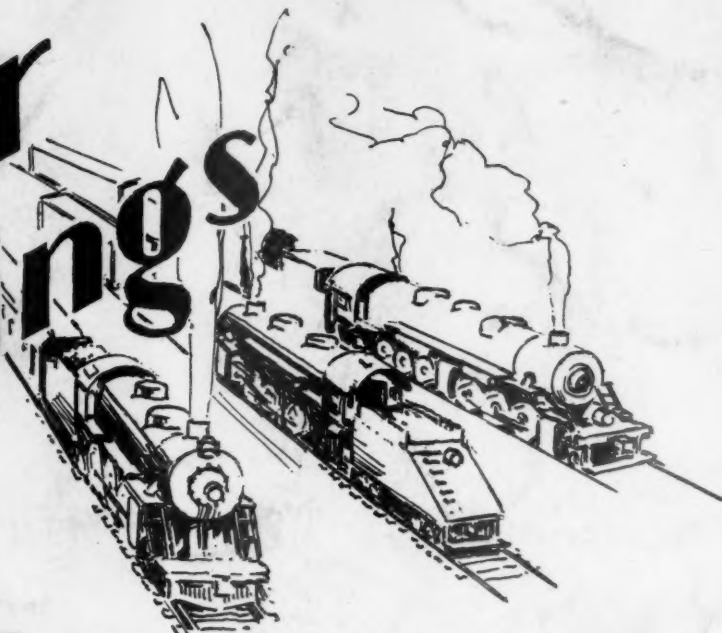
The LOCO VALVE PILOT saves 8 to 12 per cent in fuel and pays for itself in less than a year.



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230 Park Avenue, New York City

Bigger Earnings



From Every Locomotive

BERKSHIRE, Mallet, Mikado, Pacific or Switcher—every locomotive in operation today must measure up to a new standard of earning power.

More hours in revenue service—less time in the round-house. What factor is more important than the service obtained from materials.

The more you demand from your power, the more you need the super-service built into HUNT-SPILLER Air Furnace GUN IRON.

Its wear-resisting qualities insure greater mileage, fewer failures, better performance, lower maintenance and big savings in fuel consumption—all of which means bigger earnings from every locomotive.

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